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ABSTRACT

This document is comprised of volume 11 of the Harvard Education Letter, published bimonthly and addressing current issues in elementary and secondary education. Articles in the volume's six issues are: (1) January-February--"The Old Model of Staff Development Survives in a World Where Everything Else Has Changed" (Miller), "Giving Voice to Our Hidden Commitments and Fears: A Conversation with Robert Kegan," "Businesspeople and Educators Have a Lot to Learn from Each Other" (Arnett); (2) March-April--"The Numbers Game Yields Simplistic Answers on the Link between Spending and Outcomes" (Sadowski), "The Physically or Sexually Abused Child: What Teachers Need to Know" (Fossey); (3) May-June--"Despite the Promises, School Choice Can Worsen Racial and Social Class Inequities" (Tovey), "Money Matters Here: Programs That Work" (Sadowski), "How School Mathematics Can Prepare Students for Work, Not Just for College" (Forman and Steen); (4) July-August--"The Textbook Business: Education's Big Dirty Secret" (Webb), "A Narrowly Gender-Based Model of Learning May End Up Cheating All Students" (Tovey), "Computers in the Classroom: Where Are All the Girls?" (Tarlin); (5) September-October--"Moving beyond Traditional Subjects Requires Teachers To Abandon Their 'Comfort Zones'" (Sadowski), "Knowing No Boundaries: A Conversation with James Beane," "Random Drug Testing of Athletes Poses Legal and Psychological Questions" (Sandler); and (6) November-December--"Shared Decision-Making by Itself Doesn't Make for Better Decisions" (Miller), "The Application Essay: Texts, Subtexts, and Teacher Intervention" (Kreisberg), "Awareness Programs Help Change Students' Attitudes towards Their Disabled Peers" (Tovey). Regular features include letters to the editor and summaries of recent educational research. (KB)

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TEACHERS AS LEARNERS

The Old Model of Staff Development Survives In a World Where Everything Else Has Changed

A fundamental mismatch between the demands made of educators and their opportunities for professional growth makes for frustrated and stressed-out teachers

BY EDWARD MILLER

Howard Pitler, principal of L'Ouverture Elementary School in Wichita, Kansas, was excited. His plan to restructure the school into a technology magnet, with computers integrated into all phases of instruction and a schoolwide emphasis on cooperative learning and small-group work, had been approved. And he had discovered HyperCard, the versatile, open-ended Macintosh software that would, he believed, be the centerpiece of his program, enabling teachers to develop their own interactive curricula, suited to their individual needs and interests. He had become an expert user himself.

INSIDE: *Professional Development*

How Teachers Talk—and Don't Talk—About Their Work

Making School-Business Partnerships Work

Letter From the Editor

He had watched his kids play happily with the program at home, and had successfully taught a course on it at the local university.

Pitler designed a three-day course in which he would teach HyperCard to his entire staff. At noon on the first day, they all went to lunch together. "I suddenly realized that something was terribly wrong," he says. "There were thirty teachers sitting around this big table—people who knew each other and got along really well—but there was dead silence. No one said a word. They were absolutely miserable because they didn't get it, and they felt angry and resentful."

One test of professional development is its capacity to help teachers be informed critics of reform.

Though the L'Ouverture teachers eventually did learn the program, over a period of months, Pitler now looks back on that course as the worst he ever taught. "I had made the techno-nerd mistake of thinking something was easy because it was easy for me," he says. "Some of those teachers had had a total of two hours experience on a Mac. I tried to teach them all together rather than allow them to learn it themselves, at their own pace. Now I see that it's a mistake to think we all need to be in the same place at the same time."

Boring and Irrelevant

Pitler's HyperCard class illustrates one problem with the design of many staff development activities in schools. Research over the last 20 years has consistently shown that teachers learn new methods best not from lectures by experts but by seeing those methods used in actual classrooms, by designing their own learning experiences, by trying out new techniques and getting feedback on their efforts, and by observing and talking with fellow teachers (see "Schools Where Teachers Learn," *HEL*, July 1986). Teachers typically forget 90 percent of what they learn in one-shot workshops, researchers report.

In spite of this well-documented body of research, not much has changed in the world of staff development. Judith Warren Little of the Uni-

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LETTER FROM THE EDITOR

Ten Years Old and Growing Strong

About ten years ago, Patricia Albjerg Graham, then dean of the Harvard Graduate School of Education, and Arthur Rosenthal, director of Harvard University Press, had an idea: to publish a newsletter that would bridge the worlds of education research and practice. They saw a need for an authoritative and readable source of information on the theory and practice of teaching and learning—a publication that would help educators do a better job. The result of their brainstorm, the *Harvard Education Letter*, first appeared in February 1985.

As the tenth anniversary issue of *HEL* goes to press, we are struck both by the loyal following this newsletter has won among educators across the world and by the growing complexity of the work these professionals are doing. On issues from homework to cooperative learning to tracking, the *Letter* has helped make the work of our best teachers and scholars accessible to thousands of readers.

Today, the vision of Pat Graham and Arthur Rosenthal remains true. The demands of a Hydra-like school reform movement and the needs of an unprecedentedly diverse (and often troubled) generation of students make teaching in and managing schools more difficult than ever. The need for knowledge and the pressures of time have never been greater.

With this issue, which focuses on professional development and its central importance to school improvement, we thank all who have contributed to the *Letter* in its first decade—especially our editorial board and former editors Helen Featherstone and Adria Steinberg. We acknowledge, with awe, the dedication and achievements of all of you who make our schools work. And we invite you to write us with suggestions on how the *Letter* itself can be a more effective resource for your professional development. Congratulations on *HEL*'s tenth birthday also cheerfully accepted. —EDWARD MILLER

versity of California, Berkeley, says that the old "training model" for teachers' development remains dominant. "Local patterns of resource allocation tend to favor the training model over alternatives," she observes. "The investment in packaged programs tends to consume all or most of the available resources."

A 1994 study of staff development practices in four large urban districts by Barbara Miller and Brian Lord of Education Development Center and Judith Dorney of SUNY New Paltz found that the traditional model—short-term passive activities with limited follow-up—was still common, even though teachers generally found such training boring and irrelevant. Many teachers were angry about being "subjected" to inappropriate, unfocused, or ill-conceived activities. They noted that the kind of teaching they saw at such workshops would be unacceptable in a classroom for children.

What *has* changed is the nature of the demands being made on teachers, who are faced with a staggering array of complex reforms. Teachers are told that they have to set higher standards for all students, eliminate tracking, tailor lessons to kids' individual needs (including those with various disabilities), adopt small-group and cooperative learning techniques, design interdisciplinary and multicultural curricula, work in teams with other teachers, promote "critical" and "creative" thinking instead of rote learning, attend to children's social and emotional needs, rely on "performance assessment" instead of multiple-choice tests, get with the latest technology, encourage active learning in "real-life" contexts, use fewer textbooks, and, on top of everything else, become "agents of change" in their schools.

Contradictory Reforms

The old training model of professional development is simply not adequate for the ambitious visions of schooling in current reform initiatives, argues Little. "Teachers are pressed to move on many fronts at once," she says, "keeping them in an exhausting permanent mode of implementing innovations." Moreover, the demands made of teachers are often contradictory. "Reforms aimed at critical thinking sit in tension with the basic skills reforms that began in the 1960s and are still a prominent part of the urban school improvement landscape," Little points out. "Reformers call for more 'authentic' assessments, but state and local policymakers continue to judge the success of reform efforts by standardized test scores." Because of these tensions and contradictions, she says, one test of professional development is its capacity to help teachers act as shapers, promoters, and well-informed critics of reform.

The context for changing the way teachers work has become extremely complicated, says Barbara Neufeld of the Harvard Graduate School of Education. "The problem is that many teachers came through schools where they learned how to do the math problem, say, but they don't actually understand why," she explains. "Or the teacher may understand the math but not understand what makes it difficult for children. Teachers often don't have a repertoire of examples and skills to help kids understand. They need visual images of what these new kinds of teaching look like—and a human being in the classroom to observe and help them." Few school districts are prepared to support this kind of learning by teachers, and even if they were, there are few people around able to provide it.

"A new kind of structure and culture is required," says Little, "compatible with the image of 'teacher as intellectual' rather than 'teacher as technician.' Also required is that educators enjoy the latitude to invent local solutions rather than to adopt practices thought to be universally effective."

One result of this fundamental mismatch between the demands on teachers and their opportunities for professional growth is a high level of

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frustration and stress and a tendency to blame others for students' failure to learn. "Eventually," says Neufeld, "teachers begin to think, 'I wonder if these children *can* learn.'" Another side effect is the anger and resentment that Principal Howard Pitler encountered at lunch. And even where change is successful, teachers may experience unexpected levels of stress.

"After we became a technology magnet," says Pitler, "we began to see a change in the staff. Without really thinking about it, we had redefined the role of teacher from 'sage on the stage' to 'guide on the side.' We knew in our hearts that this was the most appropriate way to teach, but we were unprepared for the personal loss we felt. We were no longer the sole source of knowledge in the classroom. Now, often it was the student coaching the adult, or students coaching each other with the teacher completely out of the loop. One teacher was talking to me about this change when she burst into tears. 'I don't know who I am anymore!' she said. We ended up bringing in a psychologist to help us through the grieving process."

New Models Emerge

A few new models for effective professional development have emerged in recent years. Milbrey McLaughlin and Joan Talbert of Stanford University concluded from a five-year study of secondary schools that strong professional communities provided a context for sustained learning. They found that the most effective teachers had hooked up with a network of professionals who addressed problems and found solutions together, gaining in their sense of professional identity, motivation, and willingness to undertake challenges. They also make a strong case for the importance of "teacher discourse"—that is, the ways teachers talk to each other about their work—in managing systemic reform.

Robert Kegan and Lisa Lahey of the Institute for the Management of Lifelong Education at Harvard have also been working on new models of teacher discourse as a prerequisite for "transformative" professional development (see below). The Massachusetts Field Center for Teaching and Learning in Boston is widely cited as a model resource for designing teacher-led research, study groups, school networks, and leadership programs. The Center also publishes *Teaching Voices*, a newsletter written by educators, and guides for mentoring, grant-writing, and other staff development concerns.

For Further Information

Institute for the Management of Lifelong Education, 559 Gutman Library, 6 Appian Way, Cambridge, MA 02138, 617-495-3572.

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H. Pitler, L'Ouverture Technology Magnet, Wichita Public Schools, 1559 Ohio, Wichita, KS 67214, 316-833-8075 (e-mail: Pitler@twsuvm.edu).

ADULT DEVELOPMENT

Giving Voice to Our Hidden Commitments and Fears: A Conversation with Robert Kegan

Examining the ways we talk—and don't talk—about our work can lead to professional development that doesn't just inform us but also transforms us

Psychologist Robert Kegan, in his books The Evolving Self *and* In Over Our Heads, *has proposed a new way of understanding the processes of development across the lifespan and the complex mental demands placed on children, adolescents, and adults by modern society. His most recent work, with Lisa Lahey, focuses on how traditional forms of professional development might be adapted to fit better with the needs of educators in today's schools. Kegan is a senior lecturer at the Harvard Graduate School of Education, a senior faculty member at the Massachusetts School of Professional Psychology, chairman of the Institute for the Management of Lifelong Education at Harvard, and a Fellow at the Clinical-Developmental Institute. He was interviewed for the* Harvard Education Letter *by Edward Miller and Terry Woronov.*

HEL: How can professional development for teachers be informed by an understanding of adult development?

Kegan: First, we have to make a distinction between two kinds of professional development: *informative* and *transformative*. Informative training transmits information. It increases the teacher's content knowledge, understanding, and skills. Most in-service staff development is designed on this model. But Lisa Lahey and I are more interested in professional development that is transformative—that enables people to develop more complex capacities of mind. We think that the most powerful changes in professionals' practice come about because professionals change their minds.

HEL: Is there something wrong with the informative type of staff development?

Kegan: Not at all. Informative training increases your fund of knowledge. Lord knows, that's a useful thing. But it is an insufficiently nourishing diet by itself. If in our work with young people we found that their knowledge increased, but they did not develop more complex capacities of mind, we would be disappointed. We should want no less for ourselves as adults.

HEL: What does transformative pro-

fessional development look like?

Kegan: It begins with school leaders who create contexts for adult transformation. It's ironic that principals and superintendents are known as their communities' chief child educators, but their actual success depends more on their talents as adult educators. One way we have seen school leaders do this is by changing the discourse forms in the organization, by which we mean changing the rules for what one talks about.

Principals' and superintendents' success depends on their talents as adult educators.

HEL: What are these rules and how does one go about changing them?

Kegan: First, by becoming aware of them. Principals, department chairs, and other leaders are discourse-shapers. They influence the nature of the language in the workplace. In every organization there are rules about what's appropriate to discuss, who you can talk to, and what subjects are not okay to bring up.

For example, in many schools it's not considered appropriate to talk about how well your teaching is going, because that would be bragging. At the same time, it's not safe to talk about your teaching going badly. So those very powerful and potentially transformative conversations about practice and how each teacher feels about her work may never take place. At the same time, certain other forms of discourse are quite common: the discourse of complaint, of disappointment, of gossip, of talking behind people's backs.

We have identified five relatively rare forms of discourse that can enhance rather than inhibit professional development by creating a context for transformation. They do not, we find, spontaneously emerge within an organization the way the discourse of complaint or the discourse of gossip does.

The first we call the Discourse of Ongoing Regard, which is about the twin faces of admiration and appreciation. It's more complex than just praising and stroking people, telling them how great they are. That can easily be ungenuine and even a form of manipulation when it's directed to a subordinate. It becomes an indirect way of telling people what you want them to do.

The Discourse of Ongoing Regard is about enlarging the vocabulary of your response to others when you find yourself feeling in some way admiring, moved, inspired, or informed.

HEL: Can you give an example of this form of discourse?

Kegan: I might send you a note saying, "In watching the way you handled that difficult parents' meeting yesterday, I got a sense of another way I could deal with the hard questions from parents that have so often left me feeling unclear what to do." That communication has in it three elements important to effective appreciation and admiration: First, it's specific, rather than a vague "You were just so great in that meeting." Second, it's direct and to the person, as opposed to my standing up at a staff meeting and saying, "Ed was so helpful," and never really delivering the message to you.

But the third, most important, and most difficult to achieve element is that it is not a characterization of you. It's a description of *my* experience, which I am letting you in on. That's what distinguishes it from praise.

Compare that to the very weird and widely practiced form of discourse in letters of recommendation, where every writer has this rich bank of adjectives they draw from: So-and-So is very generous and quick-witted and so on. That's what we think of as appreciation—where we characterize the other person. We dress them in a suit of clothes that they almost always know doesn't really fit.

If I tell you *my* experience, that I was helped by what you did, that should leave you completely uncharacterized, un-pulled-upon, undescribed. There's no record you have to correct. What you're learning is not whether you're terrific or not—that's not for me to say anyway—but how the things you do make a difference in a positive way *to me*. When properly practiced, the Discourse of Ongoing Regard helps create a safer environment for the kinds of learning risks necessary for transformation; it establishes a context for later forms of discourse that are more difficult or threatening.

HEL: That one sounds difficult enough.

Kegan: It can be uncomfortable at first, but once teachers are accustomed to this form of discourse it can carry over into their classrooms. Teachers are professional praise-givers, but they may find after practice with the Discourse of Ongoing Regard that much of how they praise students is really a form of characterization: "You're smart."

HEL: Okay, what's the second form?

Kegan: The Discourse of Personal Commitment or Conviction, which creates a different context for complaints. The discourse of complaint, disappointment, wishing, hoping, and so on is one that leaders don't usually have to work at establishing in their schools. It is already alive and well—and usually unproductive of transformation because all it leads to is letting off steam or looking for allies who will sign on to your particular negative characterization of somebody or some situation.

When subordinates bring complaints to their bosses, the bosses usually feel they have a limited range of responses: they can confirm or deny them, they can defend themselves or the other parties being complained about, or they can sympathize with the complainer's position. None of these is as transformative as the Discourse of Personal Commitment or Conviction, which is a way of inviting people to translate their complaint into a new form: the deeply felt personal commitment or conviction that is actually the source of the complainer's disappointment.

We invite people to identify what they are doing to undermine their own commitments.

HEL: If my complaint is "That faculty meeting was boring and useless," what's the underlying conviction?

Kegan: Ten people with the same complaint might name ten different commitments or convictions. It might be: "I am committed to the importance of making the best use of the precious opportunities we get as a faculty to actually spend time together and focus on the nature of our work." We do that so rarely, and when we do it's in these ritualistic meetings where 80 percent of what happens could have been done by memo."

To help people clarify their commitments, we ask them to finish this sentence: "I am committed to the value or importance of...." The idea is not to try to change the essence of my complaint

itself but to locate the underlying cause: the fact that I have a certain commitment or belief. When I complain about a student who's causing trouble in class, the commitment behind my complaint may be to the value of having a nondisruptive class environment. It puts me in a different position, experiencing myself not as a complaining, disappointed person but as a person who holds certain convictions.

HEL: Does it put the leader in a different position as well?

Kegan: It changes the way leaders receive complaints. Usually either they just don't want to hear them, or they may have a view of themselves as heroic, healing leaders, and they want to hear all the complaints so they can make everything better for people. We invite instead a kind of discourse in which they receive the complaint but it gets converted into a commitment that you really stand behind. Once that is identified and made public, there is a possibility that someone is going to act on that commitment.

When you derive commitments out of complaints, they are by definition not fully realized commitments, or they wouldn't have become complaints. That raises the question, "Why aren't they fully realized?" Well, there are many reasons why our commitments are not fully realized, but the one we can do the most about begins with ourselves. There's almost always some hand we have in things being the way they are in our lives. So we invite people to identify the things they are doing, or very often the things they are *not* doing, that keep their commitments from being realized.

HEL: Is that the third form of transformative discourse?

Kegan: Yes. We call it the Discourse of Personal Responsibility—that is, identifying the things we are doing or not doing that actually undermine our own commitments or convictions. This discourse converts us from the experience of ourselves as complaining, disappointed people to people who are not just committed to something but able to own some responsibility for things being the way they are.

How important is this owning of responsibility? School leaders invariably tell us that when people come to them with complaints, they always wish that the other person would be taking more responsibility for their hand in things. Since we are "the other person" for everybody other than ourselves, obviously other people want us to do this, too.

Once we begin to look at the things we generated in the Discourse of Personal Responsibility, we are forced to consider the fact that we are complex people with multiple sets of commitments. If I feel committed to having better faculty meetings, I might identify my own responsibility by recognizing that I have never actually gone to the principal and said, "You know, I am really disappointed and disturbed about the way we spend our time." I've never actually asked for what I wanted.

School leaders invariably tell us they wish complainers would take more responsibility.

Now I can't just vow to change—that is, to start asking for what I want—until I see that my behavior comes out of some other commitment. For example, I may have a commitment to having the principal love me, or a commitment to never hurting another person's feelings, or a commitment to never seeming to be disloyal.

HEL: Is this another level of discourse?

Kegan: Yes. We call it the Discourse of Our Hidden Commitments. These are often very powerful commitments that, in our naive conceptions of ourselves as professionals, we're embarrassed about and think we're supposed to check at the door of work. But there's no way to check them at the door. They always come in.

The Discourse of Our Hidden Commitments asks us to consider that the things we generated in the Discourse of Personal Responsibility are not just professional equivalents of naughtiness that we should stop doing. We can't simply resolve to cut these things out of our act, like making a New Year's resolution. Such resolutions have very little power because they are essentially disrespectful to our own complexity. We must instead identify the underlying commitments that are expressed in the things we are not doing.

This discourse is very revealing. Once I realize that I'm actually committed to never hurting another person's feelings, I'm likely to think, "Oh, this is so true—and I hate that this is true." That puts me in a place where it becomes possible to change.

Looking at these hidden commitments brings us to the fifth form of discourse—the Discourse of Our Big Assumptions. These are the assumptions that, typically, we don't have so much as they have us. We tend not to be aware of them, but they have enormous influence over us.

HEL: If we're not aware of them, how can we begin to talk about them?

Kegan: Let's say you have a hidden commitment never to hurt another person's feelings. We would invite you to finish this sentence: "And I assume that if I ever did hurt another person's feelings, then...." What? What emerges are some pretty powerful and sometimes unwarranted fears: "The other person would be so hurt that she would hate me" or "She'd never trust me again." And then, there it is, right out there where you can actually look at it.

Making those Big Assumptions emerge for an interesting moment doesn't guarantee change. In the absence of a context that preserves my relationship to that assumption—my ability to look at it—it will generally get sucked back into my being identified with it. Like Scarlett O'Hara, "I'll think about it tomorrow." After a while it's just gone again.

So we invite people to form ongoing teams, or even to buddy up, to sustain a relationship to those assumptions in order to be able to begin to explore them, even possibly to alter them. These groups, teams, or even pairs become little "discourse communities," pockets in the organization where new forms of speech are practiced.

HEL: What's the role of conflict in all of this?

Kegan: I've focused on those forms of discourse that can support the kinds of internal work that one would do on oneself. There are still other forms that have to do with making productive use of conflict. We don't believe that you should ignore conflict or that conflict isn't a normal part of organizational life. Far from it. There are forms of discourse for difference that enable us not only to handle managerial problems but actually to use the conflict to enhance transformation.

But that's a pretty high art. We may need to develop a richer relationship to ourselves and our own inner contradictions before we can hope to make the best use of our contradictions with others.

New and Noteworthy

Brief notes on significant recent research in education

YOUTH AT RISK

Full-Service Schools Could Let Teachers Go Back to Teaching

The "full-service school" is a radical idea for educators overburdened by society's demand that schools "do it all." Joy Dryfoos, formerly of the Alan Guttmacher Institute and now an independent researcher, proposes bringing community, health, and social services into schools where students and their families could receive dental care, welfare services, counseling, and so on, under one roof. Her recommendations are based on a broad national survey of fledgling full-service programs.

The benefits of this "package of interventions," Dryfoos suggests, would be enormous. Families fragmented by poverty could get help for many different needs in one place. Teachers could go back to teaching. And students, served by a variety of social agencies within the school, could go back to learning.

The need, Dryfoos argues, is pressing. She estimates that one in four public school students, or ten million young people, are at high risk of failure. They arrive at school with social, emotional, or health problems that make learning difficult if not impossible. One inner-city principal described his school to Dryfoos as "an underdeveloped country."

See J. Dryfoos, *Full Service Schools: A Revolution in Health and Social Services for Children, Youth, and Families*. San Francisco: Jossey-Bass Publishers, 1994.

REWARDS AND MOTIVATION

The Debate Over Incentives Heats Up

The debate about the effect of rewards and incentives on intrinsic motivation (see "Letting Talent Flow" and "The Case Against Rewards and Praise," *HEL*, March/April 1994) is far from over.

Judy Cameron and W. David Pierce of the University of Alberta, authors of a "meta-analysis" of 96 previous studies, say that extrinsic rewards have no appreciable effect on intrinsic motivation. The only exceptions, they argue, are verbal praise, which significantly *increases* intrinsic motivation, and rewards that are given simply for doing a task (rather than for meeting a performance standard or completing a task), which slightly decrease intrinsic motivation.

But some prominent researchers have challenged Cameron and Pierce's methods. Alfie Kohn, author of the 1993 book *Punished by Rewards*, says their meta-analysis excludes several major studies that show rewards decrease intrinsic motivation when they are withdrawn. And psychologist Mark Lepper of Stanford University believes the analytical technique Cameron and Pierce used is flawed because it allows important positive and negative effects to cancel each other out.

Cameron and Pierce defend both their methods and their conclusions. "The literature in this area has caused a lot of people to be afraid of incentive systems," says Judy Cameron. "Our research suggests that teachers can use incentives without fear that children will lose their intrinsic drive to learn."

A related study by Adele Eskeles Gottfried and colleagues at California State University yields a different conclusion. Their long-term research found that children whose mothers use task-extrinsic motivators such as rewards and punishments to encourage school performance tend to have diminished intrinsic motivation to learn over time.

Stay tuned. The debate on incentives is expected to heat up in forthcoming issues of the *Review of Educational Research* and other journals.

See J. Cameron and W. D. Pierce, "Reinforcement, Reward, and Intrinsic Motivation: A Meta-Analysis," *Review of Educational Research* 64, no. 3 (Fall 1994): 363-423.

A. Gottfried et al, "Role of Parental Motivational Practices in Children's Academic Intrinsic Motivation and Achievement," *Journal of Educational Psychology* 86, no. 1 (March 1994): 104-113.

CHILDREN WITH DISABILITIES

Print-Rich Environments Recommended for Young Children

Even if young children with disabilities are not ready to read conventionally, they can benefit greatly from exposure to "print-rich environments." So say the directors of Project I.E.P. (Intervention for Early Progress) at the University of Texas at San Antonio.

The researchers studied 24 children age four to six who were identified as having a variety of cognitive, physical, emotional, behavioral, and developmental disabilities. Two-thirds had mild to moderate mental retardation. The children were divided into two self-contained classes—14 in an experimental class and 10 in a control class—for an entire school year. Teachers followed the same curriculum in both classes, but the experimental group also had a well-stocked classroom library, which children used independently several times a day; daily "read-alouds" by adults; and a classroom writing center.

Students worked on compositions in the writing center several times a week; the teacher accepted any scribbles or marks (but not coloring) as writing. The students composed on subjects like holidays, the seasons, and books the teacher had read to them; they were encouraged to share their compositions with each other.

The experimental class showed significantly greater gains than the control group on the Concepts About Print Test, an assessment of basic knowledge about the ways print is used to convey meaning in books. In addition, these students developed increasingly sophisticated book-handling behaviors, more complex and varied composition styles, and a greater tendency to interact with books in their free time over the course of the year. A few students even progressed to actual reading.

Project director David Katims says the findings challenge conventional reading instruction methods for children with disabilities, which often result in their having to wait until later childhood for meaningful experiences with books. "A lot of reading instruction for disabled children still follows a strictly bottom-up approach, breaking reading down to its most separate components," says Katims. "We're suggesting a top-down approach that begins with meaning and background knowledge and works its way down to word decoding."

See D. Katims, "Emergence of Literacy in Preschool Children with Disabilities," *Learning Disability Quarterly* 17, no. 1 (Winter 1994): 58-69.

TEACHING MATH

Irrelevant Information May Aid in Problem-Solving

It may seem contradictory, but giving math students irrelevant information (and tips on how to spot it) may help them to develop their problem-solving skills. Australian researcher Renae Low and colleagues at La Trobe University in Bundoora studied the teaching of algebraic problem-solving to 208 eleventh-graders. The students who received instruction in "text editing"—that is, identifying whether a word problem contains irrelevant or insufficient information—showed significantly greater gains in problem-solving than other students. Control group students received either traditional instruction emphasizing computation skills or no instruction at all between pre- and post-tests.

The greater improvement among those trained in text editing held whether problems contained irrelevant information or not. Text editing works, the researchers conclude, "by assisting the student to identify the structure of the problem that is to be solved and to process information from the text in ways consistent with the structure the student has identified."

See: R. Low et al. "Solution of Algebraic Word Problems Following Training in Identifying Necessary and Sufficient Information Within Problems." *American Journal of Psychology* 107, no. 3 (Fall 1994): 425-459.

PARTNERSHIPS

Businesspeople and Educators Have a Lot To Learn from Each Other

A diverse Ohio partnership shows what can happen when business and school people begin to see the world through each other's eyes

BY ELIZABETH ARNETT

Educators often respond with suspicion when business shows an interest in public schools. What's the business community's *real* purpose? Do they just want to create an education factory that will turn out willing workers rather than educated citizens?

Businesspeople in turn often harbor negative attitudes toward teachers that can make productive collaboration difficult. Many corporate executives think of teaching as an easy job with short hours, long vacations, and a general lack of standards for performance—unlike the tough, market-driven world of private enterprise. Schools would work better, they think, if only they were run more like businesses.

This climate of distrust makes it hard to get businesspeople and educators to work together on professional development for improving schools. And yet such partnerships, when they do spring up and manage to survive, offer superb opportunities for growth and learning to students and adults alike. I know, because for the past three years I have worked with the Total Quality Education Resource Group of the Ohio Department of Education, a diverse partnership of more than 50 businesspeople, superintendents, principals, teachers, support personnel, vocational educators, state officials, and union representatives. We share professional development activities and link businesses with schools.

No Vacation Days?

The path has not been smooth. All of us have had to examine our assumptions about each other. After several sessions the business partners expressed concern that the teachers and other school staff were not really interested in the project because they did not always show up for meetings. They were surprised to learn that teachers often weren't *allowed* to come. Many districts limited the use of professional leave or could not afford substitute teachers or bus drivers. One executive asked why the teachers could not use vacation days and was truly shocked to learn that teachers have no vacation days. Most of the business representatives had financial support from their companies, but many of the educators bore the expense of participating in the project themselves.

As we began to plan programs, the businesspeople's eyes were opened to the problems school districts face. In business, training is considered work time and is conducted during the work day. In school, professional development opportunities are usually limited to two to four days per year, including district meetings and classroom preparation time at the start of the year. Any additional training usually occurs after school. As one principal put it, "I'm a weary warrior, working with other weary warriors, as we stay after school

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to begin our own learning."

Time was not the only problem new to the business community. Executives were surprised to learn that many educators do not have access to secretarial services, computers for e-mail communication, or telephones in their classrooms. With no money for substitutes, the teachers worried about how they could get involved in long-term programs and still properly supervise their students and maintain continuity in their classes. This, too, was simply not an issue in the business world. When I suggested that the businesses in the group help solve the problem by offering a two- to four-day field experience for students, one executive simply put his head down on the table. "We couldn't do that!" he said, appalled at the thought of having kids in his workplace.

"Why not?" said Bill Hayes from Honda of America, based in Marysville, Ohio. "We're doing it." Hayes and his company, which runs an innovative training and development program for students and teachers, have been instrumental in educating other business partners in the Education Resource Group about what is possible.

Part of this education came via a survey that the group sent to all 600 school superintendents in Ohio. The businesspeople were stunned to learn from

Business leaders were stunned to learn that school administrators did not hold business in high regard.

the more than 200 responses we received that school administrators did not hold the business community in high regard and, indeed, questioned their motives for getting involved in education. Did business want workers who would think creatively and solve problems or simply follow orders on the production line? Why should we trust business's supposed interest in supporting schools when at the same time they push for special deals that exempt them from property taxes? Reading the survey responses, our business partners learned how the Chemical Abstracts Company in Columbus threatened to pack up and leave town rather than give up its tax exemption and contribute to the support of the city's public schools. They began to understand.

Teachers Are Too Nice

Not all the learning was on the business side of the table. Educators often complain that businesspeople don't understand them because they don't have to work with students who are hungry, neglected, or abused, and who vary enormously in motivation and skill. But these problems are not restricted to schools. The worlds of education and business work with the same people; there are malnourished and abused employees, and workers in the same setting have different levels of ability and interest. Teachers often complain about the amount of after-school time they spend planning lessons and grading papers. They learned in our group that others take work home, too.

Educators learned that the problems of hunger, neglect, and abuse are not restricted to schools.

Educators also benefited from the frank observations of business partners like Joe Zitnik, a former AT&T executive from Brecksville, Ohio. Zitnik spent time watching teachers and administrators at work and reported that educators were far too nice. "They're always thanking people, even for the insignificant," he said. "They look insincere. They're not willing to risk offending anyone. They praise students even for mediocre work." He also noted that teachers often complained about the administration but weren't willing to initiate change.

At the same time, Zitnik's appreciation for the complexity of school improvement issues grew. He saw firsthand how certification and work rules make change difficult, how the schedule makes ongoing professional development impossible, how in-service days offer little in the way of stimulation or new experiences, and how special interest groups monopolize the time of schools boards and administrators. "There is no quick, easy fix for all school problems," he concluded.

What resulted from all this learning? An outpouring of support for educators' professional development from the business partners in our group. Tom Baldrick of the Liebert Corporation, Don Botto of Goodyear Tire and Rubber, and Jed Osborn of Ball Metal Container have given their own time and money to provide training programs. Corporations have paid for substitute teachers and sponsored scholarships for school employees to attend conferences. Honda of America sends its own employees into schools to teach and conducts management training for teachers at its manufacturing sites.

Superintendents, principals, teachers, custodians, secretaries, and bus drivers have learned new methods for solving problems and planning work. The business community has learned more about its own planning methods by adapting them to the special circumstances of schools. Perhaps most important, the business partners discovered that there is something educators want even more than money: time and opportunity to learn.

For Further Information

Total Quality Education Resource Group, c/o Ben Lavin, Ohio Department of Education, Ohio Departments Building Room 907, 65 S. Front St., Columbus, OH 54366-0308, 614-644-0787.

Joe Zitnik, JAZ Associates, 4760 Sentinel Dr., Brecksville, OH 44141, 216-526-5666.

Elizabeth Arnett, a former middle and high school math, English, and speech teacher, is now an education reform consultant for the Ohio Education Association. She can be reached at 225 E. Broad St., Box 2550, Columbus, OH 43216, 614-227-3100.

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Correction

The opening scenario in the page 1 article on teacher intervention in the November/December 1994 issue was incorrectly described as an actual case from Toledo, Ohio. In fact, it was a composite story based on several cases of intervention in Toledo and Rochester, New York.

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SCHOOL FINANCE

The Numbers Game Yields Simplistic Answers On the Link Between Spending and Outcomes

Does money matter? Though politicians and pundits love to ask, it's really the wrong question

BY MICHAEL SADOWSKI

Does more money for schools equal better academic performance? Newt Gingrich and the *Wall Street Journal* say no, relying in large part on the work of Eric Hanushek, an economist at the University of Rochester. His often-cited 1989 review of 38 research studies concluded that "there is no strong or systematic relationship between school expenditures and student performance."

Reducing class size—the most expensive change schools have made in recent years to raise achievement—makes no difference, Hanushek argues. He cites figures for rising education expenditures and falling student performance on tests like the S.A.T. and parts of the National Assessment of Educational Progress (NAEP) as further proof that spending more money on education does not in itself lead to better results.

But Larry Hedges and colleagues at the University of Chicago reached exactly the opposite conclusion last year after a new analysis including many of the same studies Hanushek cites. Using what they considered more sophisticated synthesis methods than Hanushek's, they found that "expenditures *are* positively related to school outcomes" (italics added) and that class size *does* make a difference.

Schools that used smaller classes as an opportunity to change instruction showed dramatic improvements.

Who's right, Hanushek or Hedges? "They're both right, if you look at their data," says Richard Murnane, an economist at the Harvard Graduate School of Education and coauthor, with Frank Levy of M.I.T., of a forthcoming book on schools in a changing economy. Murnane is not being facetious. He is simply pointing out that quantitative research methods can't account for all the complexities of relating school spending to student outcomes. He is also telling us that "Does money matter?"—a hot topic in the current politics of education—is the wrong question.

The Austin Experience

Murnane cites the case of 15 elementary schools in Austin, Texas. Targeted because of poor student performance, each was given $500,000 for each of five years beginning in 1989 to raise achievement. In 13 of the schools, performance and attendance remained extremely low four years later; the other two, the Zavala and Ortega elementary schools, showed dramatic gains.

Using Hanushek's "vote-counting" method of analysis—which basically counts the number of studies that find positive, negative, or no effects, and compares the totals in each category—the conclusion in Austin would be that additional spending has no effect, because a large majority of schools showed no improvement. But in Hedges's "meta-analysis" method, the magnitudes of the effects would also be measured, and the huge gains of the two successful schools would lead to an

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What Teachers Should Know About Abused Children

Coworkers Held Liable for Knowledge of Sex Abuse

More on Peer Intervention

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overall conclusion that increasing expenditures has a positive impact.

The real question, clearly, is not whether money makes a difference *on average*, but *how* it makes a difference in the schools that are able to use it effectively. While all the Austin schools used the additional funds to reduce class size, Zavala and Ortega were the only schools that also used smaller classes as an opportunity to change instruction. They adopted new curricula and methods emphasizing more personal attention, and they mainstreamed students with disabilities into regular classes. They also increased parental involvement and improved attendance dramatically by introducing health services to the schools, which serve many families without other access to basic medical care.

The Austin experience helps to explain why researchers have often found—much to the chagrin of teachers—that class size is unimportant (see "Smaller Classes? Teachers and Researchers Disagree," *HEL*, November/December 1990). It's not that smaller classes make no difference, says Murnane, but that it's hard for teachers to make the changes that *do* make a difference. "Even with smaller classes," he says, "it's a rare teacher who can rapidly change the way she teaches. Just reducing class size and hoping that instruction will change is a bad bet."

The Failure of Research

Hanushek and Hedges both concede that their statistical analyses do not account for all the complexities of the money-achievement issue. Yet interest groups on both sides use their data as proof that spending does or does not have a significant impact on school outcomes.

A recent Heritage Foundation report prepared for Congress at the request of Speaker Gingrich uses Hanushek's vote-count data to make the case that "more money and regulation are not the answer." The report says that the opportunity-to-learn standards in the Goals 2000 education reform package prescribe numbers for class size, school materials, and per-pupil spending, despite Hanushek's evidence that these factors have no effect on performance. The Heritage report calls for eliminating the standards, scaling back other aspects of Goals 2000 and the Elementary and Secondary Education Act, and axing the federal Department of Education altogether, an idea that has found favor with Gingrich and other prominent lawmakers.

On the other side, teachers' unions have picked up on Hedges's data, along with other studies that show a positive link between spending and performance, to make a case for increased funding.

But relying on this kind of evidence can lead to gross oversimplifications. "When you compare expenditures and student performance, you don't find a lot of direct effect because of all the complicating factors," says William Cooley of the University of Pittsburgh. "It appears to be a failure of educational research rather than a failure of education."

Just reducing class size and hoping that instruction will change is a bad bet, says Harvard's Murnane.

Cooley's Learning Research and Development Center studies data from every school district in Pennsylvania and reports that three indicators account for more than 60 percent of the variation in average student performance among districts: the percentage of students living in poverty; the percentage of adult residents who are not high school graduates; and the percentage of single-parent homes. These three factors, says Cooley, together gauge the "difficulty of the educational task" for any one school. The more difficult the task—that is, the more poverty, lack of education, and overstressed families in the district—the harder the school must work just to achieve the same level of performance as other schools. Yet, Cooley says, schools with the most difficult tasks also tend to have the least resources.

One implication of Cooley's findings is that one cannot determine by looking at test scores whether a school is good or bad or whether more money does or does not help. "People look at North Dakota and conclude that they've got the best math instruction in the country because they have the highest test scores," he says. "But they fail to take into account the difficulty of the educational task, the fact that they've got a relatively small number of children living in poverty."

The Price of Success

Another implication is that children's education is affected more by what happens outside the school than what goes on inside. "The recognition that education is not just a matter of schooling makes the question of how much money is needed to support it discouragingly complex," says Harold Howe, former U.S. Commissioner of Education and author of *Thinking About Our Kids*. "Children's success in school is tied to their opportunities in families and communities and to their health, nutrition, housing, recreation, and chances to associate with adults in constructive relationships. How can we ever put a reasonable price tag on all these factors?"

Teacher salaries influence the amount of money schools need to offer high-quality instruction, but their effect varies widely among districts. "The 'Does money matter?' question has a lot to do with the ability to attract and retain good teachers," says Ronald Ferguson of Harvard's Kennedy School of Government, who has studied more than 1,000 school districts in Texas and Alabama. "Teacher salaries may not matter much in the absolute sense, but they matter more in places where teachers have a lot of competing alternatives," he concludes.

Teachers in large metropolitan areas, Ferguson explains, have more job choices. The most talented teachers easily can move to nearby school districts or to jobs in other professions. Thus, districts that pay lower salaries than surrounding districts risk having the least qualified applicants—those with the fewest alternatives. Complicating the issue even further, Ferguson says, is that teachers who are well pre-

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pared tend to be attracted to schools in wealthier, higher-status communities. As a result, poor urban districts have to offer even higher salaries to get the teachers that wealthier districts can attract with less money.

"The Texas data confirm that the more attractive schools hire from the front of the queue; the other districts take the teachers who are left over," says Ferguson. "Giving students equal access to high-quality teaching would require low-status districts to pay higher salaries than high-status districts."

Practitioners, often left out of debates on education research, approach the question of how and where money matters from a different perspective, informed not by statistics but by daily experience. Charles Mingo, principal of Chicago's DuSable High School, agrees with Howe's observation that money—or the lack of it—makes a dramatic difference in a child's education far beyond what happens in school. Profiled in Jonathan Kozol's 1992 book *Savage Inequalities*, DuSable serves an area with a per-capita annual income below $5,000; more than 80 percent of its students are poor. "Poverty affects everything, especially attitudes and aspirations," says Mingo. "These kids need to have some success experiences in school."

The Heritage Foundation itself admits that its so-called research is unscientific.

Yet DuSable struggles to fund just the sorts of things that might lead to such experiences. The school recently lost its reading program and drama club, and Mingo says it "will never catch up with suburban schools" in computer technology. DuSable also has trouble attracting good teachers because of neighborhood gang problems and salaries that are $20,000 lower than in some suburban schools.

Practitioners are especially leery of research that says spending money to reduce class size doesn't make a difference. "Class size doesn't matter if you don't want students to write," says Vito Perrone, director of Harvard's teacher education programs and a former public school teacher. "It doesn't matter if you don't want them to explore ideas, and if you're only going to use standardized tests to measure what they know."

Test-Score Junkies

In spite of ample evidence that standardized tests are unreliable measures of school quality and can lead to inaccurate conclusions about what works and what doesn't, researchers remain addicted to their use. Test scores carry another danger: news value. Business-oriented publications especially tend to paint the money-achievement connection in a deceptively simple light, using standardized test scores as proof of student failure. The *Wall Street Journal* in 1993 published a table produced by the Heritage Foundation under the heading "Money Doesn't Help." It compared S.A.T. scores, NAEP math scores, and per-pupil spending levels in the 50 states, showing that some of the lowest-spending states had the highest average test scores and vice versa.

Such a comparison proves nothing, however. Not all high school students take the S.A.T., and a much larger percentage of students take it in some states than in others. Comparing the average score in New Jersey, where 76 percent of the students take the test, with the score in Iowa, where only 5 percent take it (and those tend to be the top students, applying to competitive out-of-state colleges), obviously favors the latter. Moreover, many factors—including home environment and socioeconomic status—have equal or greater impact on S.A.T. scores than does the quality of schools.

Howard Wainer, a researcher for the Educational Testing Service (which administers the S.A.T.), says the *Journal*'s table failed to account for many critical factors, including differences in the cost of living, concentrations of immigrant populations, and differences in spending within states. "It's totally inaccurate to infer a causal implication between spending and S.A.T. scores," he says. He acknowledges that NAEP math scores may provide a more random sample, but points out that these actually show a positive relationship to spending, according to the Heritage Foundation's figures.

The Heritage Foundation itself admits that the research behind the table was not rigorous. "The *Journal* just picked it up out of our newsletter," says William Lauber, a spokesman for the foundation. "It wasn't very scientific."

Nevertheless, *Business Week* cited the same "study" in an article headlined "True or False: More Money Buys Better Schools." In it, Stephanie Forest wrote: "American students will underperform those of other industrial countries, despite one of the highest levels of educational spending. Many of the states that spend the most per pupil have the lowest test scores, says a recent Heritage Foundation study."

Eric Hanushek himself disavows the simplistic views of the business press and agrees that "Does money matter?" is the wrong question. "It's a misuse of my research to say that money never matters," he says. Why doesn't he object publicly when prominent publications oversimplify his conclusions in just that way? "That's not my job," says Hanushek.

What Does Matter?

Almost all researchers in the field would agree that educators should focus on how best to use resources to improve student performance. But their advice is often contradictory.

Incentives. Hanushek believes the key lies in incentives: "Right now, schools and teachers that do well have the same expectation for rewards as others, since there's no linkage between costs and performance." He recommends financial and career-building rewards for teachers who produce gains in student achievement and for principals and superintendents who keep achievement up and costs down. Relatively untried programs such as school choice and vouchers might serve as effective incentives for entire schools to improve, he says.

Murnane is more wary of this approach. "Thinking carefully about incentives for teachers and students is absolutely critical," he says, "but it's very hard to design appropriate incentives. I've spent years studying merit pay and am convinced that it's not appropriate. As for other incentives, it's not at all

COMING SOON

More on Money and Schools:

Using Scarce Resources Effectively

Challenges to School Funding Laws

Choice and Charters

clear what their effect will be."

Class-size thresholds. As Murnane argues, reducing class size will not guarantee improved teaching and should not be considered an end in itself. But smaller classes may well be a prerequisite for the kinds of changes in instruction that do make a difference. Ferguson's research in Texas and Alabama suggests that there is a "threshold" level of about 23 students per class, above which there are measurable negative effects. Here again, however, averages based on quantitative research tell only part of the story.

Teacher pay and school conditions. Susan Moore Johnson of Harvard's Graduate School of Education argues that teacher pay will continue to be an important issue as more career options open up for college-educated women. Administrators also will have to maintain safe and comfortable schools, she says, so that teachers are not lured to other, more pleasant work.

Kozol emphasized the need for safer, better-equipped schools in *Savage Inequalities*. But Hanushek finds Kozol's emphasis on resources and school atmosphere misguided. "It's almost trivial to say children would have a better chance at learning if they had books to take home," says Hanushek. "It's Kozolizing the problem. You point to broken windows and ask, 'How could we allow this to happen?' when there's no evidence that any of these things improve achievement."

Changes in professional development. Most teachers place a high value on professional development but are dissatisfied with the opportunities offered to them by their districts. More time and resources for effective learning experiences would increase both teacher satisfaction and student achievement (see *HEL*, January/February 1995).

Reaching Consensus

Virtually all educators and researchers believe that the place where expenditures can make the greatest difference in student learning is in the classroom. But because budgeting and record-keeping practices vary so much from district to district, research has little to say about this area of policymaking. Hanushek, interestingly, believes the charges that central school bureaucracies divert large amounts of money away from classrooms have been exaggerated.

Murnane says the most important changes in education must happen at the interpersonal level. "All education is interaction between human beings," he says. "If that doesn't change, education won't change. It doesn't happen automatically by providing more resources. But making it happen may *require* more resources.

"I don't think the dollar should lead. First, achieve consensus on goals, then develop a strategy for achieving those goals. Then ask 'What are the resource implications?' But that is not the way policy has typically been made."

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YOUTH AT RISK

The Physically or Sexually Abused Child: What Teachers Need to Know

Although educators in all 50 states are obligated to report suspicions of abuse, studies show that many teachers don't recognize even obvious warning signs

By Richard Fossey

One million children are victims of abuse or neglect each year in the United States—and those are just the confirmed cases. Experts agree that millions of other cases go unreported. One-fourth of the cases we know about involve serious physical abuse; another 15 percent, sexual abuse.

Abused children come from all kinds of families, but almost all have one thing in common: they go to school. For many of these children, caring teachers and counselors offer the best hope of relief and protection. Indeed, teachers in all 50 states have a legal obligation to report suspicions of child abuse to the police or child welfare authorities. Yet research shows that three out of four teachers may be unable to recognize the signs of abuse, even in obvious cases.

To encourage reporting, all states grant teachers immunity from lawsuits concerning any child-abuse report made in good faith, even when the report is mistaken and causes wrongly accused people considerable anguish. Still, many teachers wonder how sure they must be before they are required to report suspected abuse. Most authorities agree that educators should report if they have any "reasonable" suspicion. As one court explained, the reporting laws are intended to have a "low threshold for reporting" and only a minimum level of accuracy. Moreover, a knowing failure to report can lead to a fine, jail sentence, or both. In short, teachers should err on the side of reporting.

In spite of these laws and their im-

Courts Hold Coworkers Liable for Knowledge of Sex Abuse

It's time for school leaders to confront a culture that too often tolerates adults who exploit children

Educators are often reluctant to confront the fact that some children are abused at school by teachers or other adults. Several recent court decisions underscore the urgent need for teachers and administrators to stop looking the other way.

We do not know the extent of child abuse in schools, but most experts agree that coerced sex between school personnel and students is not rare. Students are reluctant to report such crimes, and officials who discover them often handle matters quietly to avoid publicity. A 1993 survey reported that 21 percent of females and 8 percent of males in grades 8 through 11 had been sexually harassed by a school employee. Other researchers have found that 1 to 3 percent of all children are molested by an adult at school.

The catastrophic effects of such abuse on students are, of course, the main reason to stop it. Another is legal liability. Courts have become more willing in recent years to hold coworkers responsible for an abusive employee's action if it is shown that they knew about the abuse and did nothing.

For many years state courts have been reluctant to take this step. Several state courts have ruled that school employees act outside the scope of their employment when they commit a sexual assault, and thus school districts may not be held accountable. Moreover, in many jurisdictions, school boards and employees are immune from negligence suits.

Abused children and their families have begun suing school boards and employees in the federal courts, with some success. A federal appellate court ruled, in *Stoneking v. Bradford Area School District* (1989), that a public school principal could be held liable for damages in a case where a former high school student charged that she had been assaulted by the school band director for three years and that the principal was aware of the accusations but failed to investigate them.

In *Jane Doe v. Taylor (Texas) Independent School District* (1994), the Fifth Circuit Court of Appeals issued a similar ruling. In that case, a student claimed that the principal failed to protect her from a teacher's sexual advances in spite of reports to the principal about the teacher's misconduct from the school librarian, a counselor, two community members, and at least one student.

A school employee who sexually assaults a student violates Title IX of the Education Amendments of 1972, the federal law

munity provisions, many teachers fail to act on their suspicions. Thomas McIntyre of Hunter College found that, although at least half of the nation's abused and neglected children are in school on any given day, only 10 percent of abuse and neglect reports originate in schools. Most of the teachers in his study said they had never had an abused or neglected child in their classrooms. Yet abuse is rampant. David Finkelhor of the University of New Hampshire reviewed 19 studies published since 1983 and concluded that at least 20 percent of American women and between 5 and 10 percent of men were sexually abused in childhood by an adult.

The teachers McIntyre surveyed were shockingly ignorant of the signs of sexual abuse. Only 4 percent were "very aware" of such signs; 17 percent were able to recognize the signs if they were obvious; and 75 percent could not recognize signs of sexual abuse at any point. Moreover, Finkelhor and other researchers see evidence of a "backlash" in current attitudes toward child sexual abuse—fed by sensationalized news stories about miscarriages of justice in child welfare practices—that magnifies the effects of ignorance and indifference.

Educators should know the common indicators of abuse, but it is just as important that they understand the dynamics of abuse and the psychological effect it has on children. Those who do will not only be more likely to detect and report abuse, but will also be better able to develop teaching strategies to help abused children recover from their injuries. Our responsibility to an abused child does not end when the abuse is reported and stopped; we must nurture that child in ways that help him or her become a healthy, self-sufficient, and confident adult.

Isolation Is Common

Physical abuse seems most common in families of low socioeconomic status, but most researchers have concluded that child sexual abuse is unrelated to social class or family income. Finkelhor found no link between sexual abuse and parental education, income, or father's occupation.

But an abundance of studies have shown that child abuse victims are often socially isolated, regardless of their social class or economic status. Children who are abused by a parent are frequently prohibited from having close relationships outside the family. Such children may also isolate themselves because of the shame associated with victimization by a family member.

Children who are abused by nonfamily members are often isolated from their parents. Finkelhor hypothesized that children with poor parental relationships may be emotionally deprived and needy, and thus more vulnerable to an abuser's offers of friendship and appreciation. Moreover, children with poor parental relationships may be afraid to tell their parents about the abuse because they think they will not be believed or supported. Finkelhor concluded that a poor relationship with one's parents was one of the strongest correlates of sexual abuse among girls.

Abused children may also be isolated from friends. A recent study conducted by Suzanne Salzinger and colleagues at the New York State Psychiatric Institute found that children who are physically abused at home are often unpopular with classmates. Parents and teachers were more likely to describe them as disturbed. "Abused children [in the Salzinger study] did not seem to know who their friends were," reported the *Harvard Mental Health Letter*. "The children they named as friends often rejected them and there were usually other classmates who liked them better. Other children rarely made this kind of social misjudgment."

It seems likely that sexual abusers who are not related to their victims choose isolated children as their targets to reduce the risk of discovery. The victims often come from dysfunctional families. Robin Cona, a legal adviser for the Illinois Board of Education, ob-

that prohibits sex discrimination in schools that receive federal funds. The U.S. Supreme Court ruled in 1992, in a case involving accusations of sexual harassment and abuse by a teacher, that school districts could be sued under Title IX for the full range of compensatory and punitive damages.

Until recently, most questions of liability involved supervisors and school boards. But a federal court in Texas ruled in *Doe v. Rains Independent School District* (1994) that a molester's teaching colleagues can also be held liable if they knew that a student was being sexually abused and failed to report it in accordance with state law.

How Abuse Happens

These and other cases tell us much about how sexual abuse happens in schools. It usually involves multiple incidents and multiple victims. A survey by Gail Sorenson of the University of North Carolina found 37 cases over a four-year period; 20 involved multiple victims, and 30 involved multiple acts of abuse against the same student. Sorenson's findings suggest that sexual abuse often goes on for a long time—months or even years—without detection.

Child abuse in schools is often a crime of opportunity. Certain job categories figure prominently in cases of sexual abuse and harassment: male coaches, band directors, and extracurricular advisers. These adults tend to be held in high regard by students and have more opportunities for one-to-one contact with them—often in private settings—than other teachers. Coaches and band directors usually have access to isolated facilities such as training and dressing rooms, empty gyms, and band practice rooms. Court records show that sexual assaults often take place in these settings.

Studies show that children with physical and mental disabilities and behavioral disorders may be particularly vulnerable to sexual abuse. Several cases involve accusations that the abuse took place while such students were being transported to or from school.

Finally, court records suggest that sexual abuse by school employees is more likely to happen where there is a climate of indifference toward such acts—where officials failed to respond to reports of abuse. School boards manifest this same indifference when they enter into confidential agreements with teachers accused of sexual abuse, allowing them to go to other districts where they molest still more children.

These patterns of behavior suggest certain basic precautions. In general, a school employee should not be left alone with a single child in an isolated setting for long periods. Extra care should be taken in supervising special education students at school and in transit. Given the tendency of abusers to have multiple victims, authorities should thoroughly investigate an employee's activities after a single incident of abuse is discovered. Schools should also regularly inform employees of their legal responsibility to report child abuse.

Perhaps most important, school leaders should remind employees of their obligation to respect and protect the children in their care. We may never be able to eradicate sexual abuse in schools, but we can and must nurture school cultures that are intolerant of adults who exploit children.

—RICHARD FOSSEY

serves that sexually abusive teachers choose their victims carefully. "They zero in on the more vulnerable kids—the unhappy ones, the ones with no one to tell," she says.

Child abusers themselves confirm that they often look for particular characteristics in their potential victims. Sex offenders at the Maine State Prison, who created a handbook on child abuse prevention, described their victims in these words: "Someone who had been a victim before; quiet, withdrawn, compliant... Easier to manipulate, less likely to put up a fight, goes along with things... The look in their eyes. It's a look of trust. They like you. If they are going to show resistance, they'll look away."

This portrait of the victim as lonely, vulnerable, and isolated from family and friends may explain why sexual abuse often goes undetected for long periods. Victims may have no one to turn to for help and no one who is close enough emotionally to recognize their distress.

Abused children often exhibit academic or behavioral problems in school. Physically abused children have trouble solving problems with peers, and often lack close friends. A 1993 study by John Eckenrode and colleagues at Cornell University concluded that abused and neglected children were more likely than others to be poor learners, have discipline problems, and be retained in grade. Physically abused children, in particular, had high rates of discipline referrals and suspensions. On the other hand, the same study found that sexually abused children did not exhibit unusual academic or discipline problems, unless the children were neglected as well as sexually abused. One writer has noted that sexually abused adolescents may actually improve their school performance as a way of concealing the abuse.

Children with disabilities are at higher risk than others, suggesting that special education teachers be especially watchful for signs of abuse. Darcy Miller of Washington State University found that adolescents with behavioral disorders reported high incidences of both sexual and physical abuse.

The Legacy of Trauma

Abused children are victims of trauma. Judith Herman and colleagues at Harvard Medical School report that, although the impact depends on the child's developmental stage and the severity of the trauma, the effects of abuse are fairly predictable. Repeated physical and sexual abuse causes long-term psychological injury, which may in turn increase the victim's vulnerability to further abuse.

Chronic abuse impairs the child's intellectual and social development, preventing "the ordinary integration of knowledge, memory, emotional states, and bodily experience," says Herman. Other researchers have noted a similarity between the symptoms of trauma victims and attention deficit disorder, suggesting that for some children ADD may be linked to trauma. There is also evidence that abuse is a cause of childhood hyperactivity.

Bessel van der Kolk of Harvard Medical School believes that severe trauma creates physiological changes in the central nervous system that may manifest themselves at school as learning disorders. Abused children, researchers report, have impaired verbal ability; they speak fewer sentences, use fewer words, and do not enjoy inventing stories as much as other children. They have a harder time solving problems and give up easily.

There is good evidence that abused children sometimes develop a destructive attachment to their abusers, particularly if the abuser is a caregiver such as a parent or teacher. Sometimes this

attachment prevents the victim from breaking free of the abuser and seeking help. "Even more than adults," says Judith Herman, "children who develop in a climate of domination develop pathological attachments to those who abuse and neglect them, attachments that they will strive to maintain even at the sacrifice of their own welfare, their own reality, or their lives."

Often this pathological attachment will cause an abused child to protect the abuser, sometimes by helping the abuser avoid detection. Arthur Green of Columbia University found that a child's tendency to shield an abusive parent may not be motivated solely by a desire to avoid harsher treatment. Rather, the child may be engaging in pervasive denial.

"This suppression of the perception of parental assault was occasionally motivated by threats of additional punishment," says Green, "but it also was associated with the children's desperate need to protect themselves from the terrifying awareness of the parents' destructive impulses toward them, the acknowledgment of which reality would lead to fears of annihilation, or intense retaliatory rage, which would endanger the child's psychological survival."

Finally, trauma victims have a tendency to reexpose themselves to situations that are reminiscent of the original trauma. Van der Kolk calls this phenomenon "addiction to trauma," and others have referred to it as "learned helplessness." Richard Kluft of Temple University studied incest victims who were later sexually exploited by therapists; he called the phenomenon "the sitting duck syndrome."

Indicators of Abuse

The signs of abuse are not always easy to see. Child abuse—particularly sexual abuse—usually takes place in secret, away from school. Nevertheless, there are certain indicators that teachers should know.

Unexplained bruises, welts, bite marks, burns, or fractures—especially if they appear regularly after school absences—may be indicators of physical abuse. Children who engage in self-destructive behavior, are chronic runaways, have unattended medical needs, or show a reluctance to go home at the end of the school day may also be victims of physical abuse.

Physically abused children often are wary of adult contact, are unusually apprehensive when other children are upset, give improbable explanations for or refuse to talk about injuries, and pretend that their injuries don't hurt.

Torn, stained, or bloody underclothing; venereal diseases; pain in the genital area; or difficulty walking or sitting may be indicators of sexual abuse. Children who attempt suicide, are threatened by physical contact, mimic sex acts, or behave promiscuously may also be showing the signs of victimization.

Sexually abused children often are unwilling to change clothes for or participate in gym, have poor relationships with peers, have a distorted body image (their artwork may depict missing or mutilated body parts), become aggressive or violent when provoked, or seem withdrawn, infantile, or depressed.

Though all educators are required to report suspected abuse, state laws vary somewhat in their definitions of abuse and neglect. School administrators have a legal and ethical duty to inform their staffs about applicable local laws and to mobilize teachers to become active protectors of children at risk.

For Further Information

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Richard Fossey is Associate Professor of Education at Louisiana State University in Baton Rouge.

LETTER TO THE EDITOR

A Different Kind of Peer Intervention

TO THE EDITOR:

New York City's seven-year-old Peer Intervention Program (PIP) differs in several important ways from the Toledo and Rochester programs described in Lisa Birk's article "Intervention: A Few Teachers' Unions Take the Lead in Policing Their Own" (*HEL*, November/December 1994).

• Maintaining high standards is each teacher's professional responsibility, not only the supervisor's. Therefore PIP is open to *any* tenured teacher seeking to enhance his/her practice. Teachers nominate themselves.

• The relationship between the program and the teacher is confidential and nonevaluative. We do not determine who is retained or who is made to leave. Our intervenors are contractually enjoined from testifying or providing documentation at disciplinary hearings. Because intervenors can establish trusting relationships with participating teachers, those teachers are much more likely to take the steps required for improving their practice.

• Administrators retain their responsibility for bringing charges against a tenured teacher. Should this occur, the intervenor's role, the participating teacher-member's right to representation by the union, and the union's legal obligation to ensure due process for all teachers are never in conflict.

• PIP's staff includes an alternative careers liaison, who offers intensive support by identifying job opportunities and developing the teacher's job-search skills. This allows the teacher to make a dignified exit.

• Our peer intervenors engage in continuing training themselves. The program sponsors seminars on cognitive coaching, adult development, observation and conferencing skills, brain research, learning styles, and other topics.

Why do teachers come forward in a nonjudgmental, voluntary, nonevaluative program? Because it recognizes their capacity and willingness to improve with the help of a master colleague.

CLARE COHEN
NEW YORK CITY

The writer is coordinator of the Peer Intervention Program of the New York City Board of Education and United Federation of Teachers. For more information write to PIP, 260 Park Avenue South, New York, NY 10010 or call 212-598-9210.

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New and Noteworthy

Brief notes on significant recent research in education

GENDER EQUITY

Extracurricular Activities May Be Key to Closing Math Gap

Researchers have long observed a gap between high school boys and girls in higher-level math achievement, but explanations of its causes differ. Some believe boys tend to do better because of sex-role socialization and role modeling; others cite parental expectations; some even say the difference is genetic. Sociologist Doris Entwisle and colleagues at Johns Hopkins University believe that differences in the amount of time boys and girls spend out in their neighborhoods may offer important clues to the answer.

The researchers studied a random sample of Baltimore public school students, representing 20 neighborhood schools, from first through eighth grade. They found that while boys and girls have roughly the same average scores in math, the variance in boys' scores gets progressively larger than the variance in girls', so that by the eighth grade high-scoring boys do significantly better on tests of higher-level skills than do their girl counterparts. Low-scoring boys do worse than their girl counterparts, however.

Drawing on previous research, Entwisle says that boys in the elementary grades spend more time out of the home than do girls. Further, higher-income boys are more likely to spend their time away from home in highly organized extracurricular activities like sports. Higher-income girls are less likely to have access to these kinds of activities, which develop problem-solving and other skills.

"Considerable evidence suggests that boys tend to use time away from home to engage in organized sports and games or to take part in group activities with friends *when this is possible,*" which gives higher-income boys an edge in math reasoning practice, the researchers conclude.

See: D. Entwisle et al. "The Gender Gap in Math: Its Possible Origins in Neighborhood Effects." *American Sociological Review* 59, no. 6 (December 1994): 822-838.

REWARDS AND MOTIVATION

Kids Add Their Views To Rewards Debate

In the last issue we reported that the argument among researchers about the effects of rewards and praise on intrinsic motivation is not over. Now add a chorus of young voices to the debate.

Psychologists at the University of Illinois at Chicago and the University of Washington interviewed 93 children age 7 through 12 about their views on various motivational strategies. The researchers asked the children to rate four practices used by math teachers according to fairness and effectiveness: (1) "encouraging a task focus," that is, telling all students what they are doing well and what they can work on in the future; (2) praising excellent performance and holding up the students who do well as models for the rest of the class; (3) giving rewards, such as coupons to buy things at the school store, for excellent performance; and (4) giving rewards for high levels of effort, regardless of whether answers are correct or incorrect.

Students rated the first strategy, encouraging a task focus, as both the most effective and the most fair. The second highest rating, both in fairness and effectiveness, went to rewarding high levels of effort. Giving rewards strictly for excellent performance ranked third in both categories, and public praise ranked last. Only 30 percent of the students thought public praise fair.

The researchers found near-consensus on one issue: praising only the excellent students harms other students' sense of self-worth. "See, with kids it's weird," said one fifth-grader in the study, "because just a certain way that teachers say something can make them feel dumb. So when the teacher says, 'You have to work harder,' that may make these guys feel really dumb and stupid, and they won't want to learn more."

See: T. Thorkildsen et al. "What Is Fair? Children's Critiques of Practices That Influence Motivation." *Journal of Educational Psychology* 86, no. 4 (December 1994): 475-486.

SCHOOL CLIMATE

'Caring Communities' Improve Attitudes About Learning

The idea of creating "caring communities" in schools might seem beside the point to those who believe teachers should stick to the basics, but researchers at the Developmental Studies Center (DSC) in Oakland, California, argue that children in such schools are more likely to achieve academic success and develop positive social attitudes.

The DSC's research in 24 elementary schools shows that where students and teachers perceive a strong sense of being in a "caring community" the students tend to like school more, do more outside reading, and have higher educational aspirations. They also tend to do better in a range of social skills such as conflict resolution, altruistic behavior, and concern for and acceptance of others. Students' perceptions about the level of caring in their schools were measured by responses to such statements as "Students in my class work together to solve problems" and "My school is like a family."

Preliminary data from the next phase of the study, reports DSC president Eric Schaps, link caring school communities to better academic achievement and less substance abuse and violence. Final data on these outcomes will be available in about a year.

One of the most troubling findings of the study, says Schaps, is that schools in high-poverty areas are less likely than others to be perceived by students and teachers as caring. "It may be more difficult for schools serving poor children to help them develop a strong sense of classroom and school community, but it also may be more important for them to do so," he says. "A strong sense of community in school seems to help poor children develop the attitudes, expectations, and motivations that characterize more affluent students."

See: V. Battistich et al. "Caring School Communities." Unpublished paper. Available from Developmental Studies Center, 2000 Embarcadero, Suite 305, Oakland, CA 94606-5300; 510-533-0213.

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VOUCHERS AND MAGNETS

Despite the Promises, School Choice Can Worsen Racial and Social Class Inequities

Because parents usually choose schools based on similarity of culture, not quality of program, unregulated choice leads to more segregation, not less

BY ROBERTA TOVEY

The magnet school program in Montgomery County, Maryland, is flourishing. Begun in 1977 to further racial integration and serve a diverse student population, the program today involves almost 20 elementary and secondary schools and enrolls more than 10,000 students. Individual programs focus on computer literacy, French immersion, physically handicapped students, and the "gifted and talented."

Yet most Montgomery County parents who choose magnet schools are not motivated primarily by the school's curriculum. Nor are their preferences likely to advance integration. Instead, parents seek schools where the students' families make about the same amount of money they do, and where the kids match their own color or ethnicity.

In Milwaukee, grassroots efforts in the late 1980s led to the creation of a voucher program to allow low-income public school students to attend private schools, like the popular Urban Day School. Such schools receive about $2,000 in public funds for each voucher student. Parents who use these vouchers are enthusiastic about the program. So are the private schools, for whom vouchers have been a financial boon.

The new choice programs of the 1990s, if not carefully monitored, could thwart desegregation efforts.

But John Witte of the University of Wisconsin, an independent evaluator of the Milwaukee voucher scheme, observes that "this program was not inspired by an interest in desegregation." Indeed, with one exception, the private schools taking part in the program are as segregated or more segregated than the public schools: Urban Day's students are almost 100 percent black; the students at Bruce-Guadalupe Community School are nearly 100 percent Hispanic.

Milwaukee does have a mandatory desegregation program—Chapter 220—in which 7,000 white students are bused to city schools and 6,000 nonwhites go to the suburbs. One reason the private school voucher program is so popular, says Witte, is that "it is a way to get out of busing."

Choosing Segregation

School choice was first advocated by Southern conservatives as a means of thwarting desegregation efforts in the 1960s; the new choice programs of the 1990s, if not carefully monitored, could further that same goal. Though proponents of choice often describe it as a form of voluntary desegregation, as well as an opportunity for low-income and minority students to get a better education tailored to their particular needs, recent research tells a different story. "Choice appears to have a stratifying effect, by race, social class, and ethnicity," says Richard Elmore of the

INSIDE

Money Matters Here: Programs That Work

How Schools Can Teach Math for the Real World

New and Noteworthy: Technology and Literacy

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Harvard Graduate School of Education, "even when it is explicitly designed to remedy inequalities on these dimensions."

These new studies reveal a disturbing trend: families that participate in choice programs often choose schools on the basis of similarity in culture, location, and ethnic mix—factors that tend to perpetuate segregation. Jeffrey Henig of George Washington University studied the Montgomery County magnet schools and found that "race continues to play a role in shaping parental choices among schools." White students from higher income families were more likely to request transfers into mainly white schools in higher income neighborhoods; students of color were more likely to request transfers into mainly nonwhite schools in lower income areas. The reasons, Henig speculates, may be that the schools' academic programs are not as clearly differentiated as they appear to be, or simply that parents place more importance on the nonacademic qualities of schools, like proximity to home or familiarity.

Proponents of choice often describe it as a form of voluntary desegregation, but research tells a different story.

Because school officials in Montgomery County are bound by racial balance requirements, the magnet program there has not actually worsened segregation. Henig believes that, "when done right," magnet programs *can* be used to promote integration, and can help "keep white families in town." But without intervention of the sort that many choice proponents reject in the name of "downsizing" government, parents' choices would lead to more segregation, not less. "Unless aggressively regulated by authorities," says Henig, "choice may exacerbate, rather than ameliorate, racial segregation. And the choice movement today, unfortunately, seems to be turning away from managed programs."

The potential for increased racial segregation in uncontrolled choice programs is cause for concern in light of more than 30 years of research showing that students in integrated schools are more likely to complete college, get better paying jobs, and break out of the cycle of racial isolation and poverty in which many black and Latino families are stuck (see "Forty Years After *Brown* . . . ," *HEL*, January/February 1994).

Choice programs may intensify the gap, not just between races, but also between those who are better educated, more motivated, and better employed and those who are not. In study after study, analysts find that those families most in need are least likely to take advantage of choice programs. San Antonio's multilingual magnet school program, designed explicitly to improve the performance of Latino students through immersion in their culture and language, is a case in point. While researcher Valerie Martinez (University of North Texas) found positive effects on achievement for participating students, she also found that the children most likely to participate are higher achievers, from relatively better-off families, with parents who are involved in their children's education.

Left Behind

A study of Detroit families' attitudes by Valerie Lee of the University of Michigan similarly revealed that, while many lower-income families favor choice, those in the lowest third in terms of income and education were likely to have no opinion on the subject and were least likely to participate. Moreover, Lee points out, as relatively better educated and more involved parents opt out of the public school system, the loss of their influence "can have an adverse effect on the schools and families left behind."

"When children from poor districts opt for richer districts, the result can be financially detrimental to poor districts," says Lee. "This is a case of 'the rich getting richer, the poor getting poorer'—the essence of social stratification." Because the presence of good students is known to have a "pull up" effect on other students, the skimming off of the best students in a school can further harm those who remain.

"How did the many Detroits of our nation develop the socially disastrous environments that they currently offer families?" Lee asks. "One by one, families left the cities when they were able to do so. But other families were unable to leave, whether for economic reasons, lack of motivation, or the hostility they faced in neighborhoods elsewhere." Choice, she concludes, "bears an unsettling resemblance to the very social, economic, and political processes that created the problems of urban education." In light of Lee's and other scholars' research, Elmore cautions policymakers "to treat with considerable skepticism the claim that educational choice enhances equality of opportunity."

The families most in need are least likely to take advantage of choice programs.

Nevertheless, many low-income parents favor choice, seeing it as a chance to give their children better schools and more opportunities. Bruce Fuller of Harvard University argues that school choice is "potentially a good answer to educational problems for parents who are well-motivated and who have plentiful information." In Fuller's view, choice programs pose a dilemma for policymakers. While they worsen inequities among those who don't participate, he says, there is also inequity in not allowing some parents a chance

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to improve their children's lives. "This is why many advocates for choice come from ethnic neighborhoods usually viewed as part of the political left."

"Should the state's role be to encourage motivated parents to move upward socially and economically?" Fuller asks. "Or should the state control choice to keep these parents where they are in the name of equalizing advantages to all? This dilemma becomes more and more bewildering in multicultural societies, where parents express diverse educational values." Fuller therefore favors so-called involuntary choice, such as the program in Cambridge, Massachusetts, where all parents have to choose their children's schools. "When all parents choose," he argues, "they must search out information and express their preferences."

Choice and Achievement

Although families that send their children to private, magnet, or suburban schools through choice programs generally express satisfaction with these schools, evidence of the effect on students' academic achievement is mixed. Witte compared the test scores of students who participated in the Milwaukee voucher program with those of a random sampling of Milwaukee public school students, controlling for the influence of student background. He found that voucher students did not appear to do any better than the public school students. Witte also observed a high rate of attrition from private schools.

Even parents who participate in choice programs often select schools without knowing much about them.

To complicate the picture, several studies indicate that merely being from a family that chooses to participate in a choice program has a positive effect on achievement. Researchers were able to isolate the impact of being from a choosing family by comparing achievement scores of students who wanted to attend a choice school but for one reason or another were not admitted with the scores of students who were admitted.

Even without clear evidence of academic gains for students who participate in these programs, choice remains inherently attractive to most parents: 62 percent of Americans favor school choice, according to a 1990 Gallup poll. Support for educational choice is rooted in the strong individualism of American politics and culture. Witte puts it simply: "Parents support choice because it gives them options." Perhaps the very act of choosing is empowering and is itself a benefit of choice programs.

But what about those families for whom choice programs are not empowering? The research of Lee, Witte, and Martinez points to an identifiable group of families that tend not to take part, families for whom choice programs do not offer attractive or feasible options. Several recent studies attempt to throw light on the attitudes of this "nonchoosing" group.

Rejecting 'White' Values

Amy Stuart Wells of U.C.L.A. interviewed African-American students and parents who live in St. Louis and found that, while some students take advantage of a program that sends them to largely white suburban schools, others feel uncomfortable in these schools and opt for the familiarity of neighborhood schools. Still others deliberately reject what they perceive as a white, middle-class value system that equates better schooling with good jobs and a better life.

Bruce Fuller's analysis of preschool choices shows that Latino families are much more likely to shy away from formal preschools than black or white families, even though there is clear evidence that children who attend such preschools will do better in school later. The reason? Many Latino parents prefer to keep their children in familiar surroundings, with family members or home caretakers who share their culture and values. Elizabeth Weiser Ramirez, of the Hispanic youth organization Aspira, says that Latino families see preschools and day-care centers "as a kind of foreign turf."

Another reason parents don't participate in choice programs is that they don't know about them. Here, again, the least educated and least integrated families are most at risk. Witte found that in 1991, the first year vouchers were used in Milwaukee, 51 percent of families had not heard of the program. In Montgomery County, more than a third of families have never heard the term "magnet program," with higher proportions among minorities, especially Hispanics.

Even parents who participate in school choice programs often select schools without being well informed about them, relying on casual remarks by friends and neighbors or a vague sense that a given school "has a good reputation." Many parents and students simply assume that any school in a white or suburban area or other higher status neighborhood is better than a mainly black school.

Critics argue that, for many parents and children, choice programs as they are currently formulated do not present viable options. Ironically, these are the families whose children, because of lower incomes and less education, stand to gain the most from choice. If these increasingly popular programs do not take into account cultural preferences, Fuller argues, "the results will be far from empowering."

COMING SOON

Gender Equity in the Classroom

The Trouble with Textbooks

Teachers' Assumptions About Intelligence

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Roberta Tovey, a former professor of English at Clark University, is a Boston-based writer, editor, and teacher in humanities and social science.

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PROMISING PRACTICES

Money Matters Here: Programs That Work

Some successful programs show how money can make a big difference when it's spent wisely

BY MICHAEL SADOWSKI

Proponents of school choice, privatization, and merit pay for teachers like to apply market analogies to schools. The fairness of such analogies is open to question, but at least two basic ideas from economics seem to make sense when applied to schooling: you have to invest wisely, and you have to commit sufficient resources to your enterprise to reap a significant return.

Robert Felner of the University of Illinois at Urbana-Champaign has studied schools in several states to figure out how and when additional funding and new programs make a difference. His findings reflect a strange reality in the mathematics of school finance: one plus zero usually equals zero, but one plus ten can equal eleven, twelve, or even more. "It's nonlinear," says Felner. "There are a lot of changes schools can make that probably don't matter much individually, but put them together and they matter a lot."

Guiding Success

The Indiana School Guidance and Counseling Leadership Project illustrates Felner's idea in practice. Now in its third year, the project is geared to raising the aspirations and achievement levels of middle and high school students.

Early results show that New York's new small, focused schools produce higher achievement.

Indian Creek High in rural Trafalgar, Indiana, one of the participating schools, has seen dramatic results. The number of Indian Creek's 550 students who plan to go to college has risen from 53 percent of the class of 1988 to 97 percent of the class of 1997. The percentage of students taking the P.S.A.T. has doubled in three years, and 100 percent of the students now take courses that meet postsecondary enrollment requirements (compared to just 57 percent statewide). The project was funded by a three-year $100,000 grant from the Lilly Endowment.

"This program has fundamentally changed the way people think," says Indian Creek guidance counselor Sue Reynolds. "That's when change really happens." She notes that changes took place at many levels: administrative, curricular, interpersonal, and philosophical. The focus of the program, according to Reynolds, has been "to help all students develop high personal goals and make choices in high school to support those goals."

The Lilly funding paid for much more than the modest dollar figure might suggest. It supported the development of advisory groups; every teacher now mentors 12 to 15 students, meeting with them for a full period once a week to discuss goals and strategies for achievement. The money paid for staff training for this advisory work, and for a half-time staff person to coordinate parent involvement in the goal-setting process. It also paid for generous release time for staff to explore their own goals and philosophies, stipends to bring together community members on local advisory teams, staff development programs with consultants and practitioners from other districts, and time to work on a new curriculum and block schedule to support the school's new goal-directed focus.

"A lot of our students come from families where nobody's been to college before," Reynolds says. "Now they know it's a possibility."

Project FIRST

Despite recent threats in Congress to cut President Clinton's AmeriCorps national service program, at least one of the projects in which AmeriCorps members are involved is proving to be a wise investment. Project FIRST, designed to enhance the use of technology in schools, is paying dividends in three cities: Atlanta, New York, and Charlotte, North Carolina.

The New York program, a collaboration between the Fund for New York City Public Education, the IBM Corporation, and other organizations, uses AmeriCorps staff (mostly recent college graduates with computer expertise) as technology coordinators in 20 public high schools. The coordinator surveys the school's existing resources, assesses its needs, and develops a strategy for integrating technology into the curriculum. AmeriCorps members also teach students, teachers, librarians, administrators, and other staff how to use the school's resources effectively.

Mini-grants for teachers in the Chapter 2 program had a significant effect on staff morale.

Most New York City schools have at least basic computer equipment, but getting it up and running can be a challenge, says Project FIRST director John Miottel. Much of the equipment is old and in disrepair. "Some of these schools have printers that have been jammed for three years," says Miottel. Getting technical help and training is prohibitively expensive at consultants' usual rates. Project FIRST schools get it from the AmeriCorps workers at a fraction of the cost.

At P.S. 279 in the Bronx, which serves a large population of poor families, AmeriCorps member Ian McGowan has turned the school library into a high-tech media center. By reconfiguring computers once used only for word processing and games, McGowan has introduced students, staff, and parents to telecommunications, digital video, and CD-ROM software. He also has downloaded more than 700 "shareware" (free software) applications. McGowan next plans to connect classrooms to the library using existing cables, which should have an even larger impact on instruction at the school.

"It's extremely cost-effective," says P.S. 279's principal, Luisa Fuentes. "We have someone here at minimal wages who has moved us into the future. Ian has taught our students how to use computers and conduct research, involved parents in our school's transformation, and trained a cadre of staff members in computer software and hardware technology." This last compo-

nent will be especially important after McGowan's term ends in June, Fuentes notes.

John Miottel estimates that the total cost of the changes at P.S. 279, including the cost to the federal government for McGowan's services, has been less than $20,000.

Start-Up Schools

Spending just over one million private dollars over a three-year period, the Fund for New York City Public Education has also coordinated the planning and opening of 15 "New Visions" schools within the city's public school system. These small elementary, middle, and high schools emphasize specially focused programs and more personal instruction—and the results so far are promising.

The new schools include the Thurgood Marshall Academy for Learning and Social Change, which combines a standard academic curriculum with the study of political and social leadership; El Puente Academy for Peace and Justice, a bilingual school emphasizing the use of local resources to build a safer and more peaceful community; and the New York City Museum School. A sixteenth New Visions school is scheduled to open on Staten Island in September.

Early results show that ninth-graders in the schools earn more credits and pass more courses than ninth-graders citywide. Students at one New Visions school, the Science Skills Center for Science, Technology and the Arts, have scored as well on the state's Regents Exam in biology as students in highly selective medical science programs. These figures are especially impressive given the fact that admission to New Visions schools is not based on students' previous academic records.

"The Fund has allowed us to create a school that bridges the museum and school worlds," says Sonnet Takahisa, codirector of the New York City Museum School. "We offer project-based, participatory learning to students, many of whom had never been in a museum before they came here." The school works collaboratively with the American Museum of Natural History, the Brooklyn Museum, the Jewish Museum, and the Children's Museum of Manhattan.

Publicly Funded Programs

Private funders often try to ensure that their investments yield high returns by attaching conditions to their financial support. School districts might have to provide matching funds or support for professional development activities before the funder will send a check. But publicly funded programs like AmeriCorps come under even greater scrutiny as federal, state, and local budget axes loom.

The Elementary and Secondary Education Act's Chapter 2 programs, intended to improve opportunities for disadvantaged students, may fall to the cost-cutting mood in Congress. Yet a recent study by SRI International for the U.S. Department of Education shows some recipients making measurable gains with their Chapter 2 dollars.

The Columbus, Mississippi, Municipal School District pays for its Alternative 7 program with Chapter 2 funds. The program provides at-risk students with individualized supervision to reinforce academic skills and enhance self-esteem. According to the SRI study, 75 percent of the participating students increased their academic performance by 1.5 grade levels or more. Other gains included improved attendance.

Money spent on release time and professional development at Austin's Ortega School paid off.

Staff morale, which has an indirect but undeniable effect on student attitudes and performance, can also be affected by additional funds. In the Southwest Allen County Schools in Indiana, for example, Chapter 2 money is used to provide mini-grants to teachers for special projects. "The mini-grants process has given teachers different types of benefits," says the SRI report. "They feel more empowered and are willing to seek out other options and opportunities than they were before."

Changing Instruction

Sometimes increased school spending produces little change; in other cases, the results are dramatic (see "The Numbers Game Yields Simplistic Answers on the Link Between Spending and Outcomes," *HEL*, March/April 1995). Fifteen low-performing elementary schools in Austin, Texas, began receiving about $500,000 each year in 1989 to improve students' achievement. Only two, the Zavala and Ortega schools, have shown appreciable gains, but these have been impressive.

"I think it was our philosophy that made the difference," says Ortega Principal Linda Tinsley. "Not just saying that all children can learn but really believing it." In addition to reducing class size (like all 15 of the Austin schools), Ortega used part of the money for teacher release time and professional development activities that resulted in a new way of looking at curriculum. The school used its "Aim High" gifted and talented program as a model for instruction at all ability levels. Other changes included a longer school day, extensive programming for parents, and the expansion of several positions, such as the school counselor and librarian, to full time.

Ortega's students classified as "at risk" now score consistently higher than their district and state counterparts in math, reading, and writing assessments. The school's attendance rate is now the second-best in the city (after Zavala), and Ortega won a federal Blue Ribbon award last year for exemplary instruction.

But now that the extra funding has expired, Tinsley fears the gains may be in jeopardy. Class size is creeping back up and the librarian position has been cut back to half time. "It's too soon to tell, but I'm worried," she says.

A common theme in all these cases seems to be that money, when used to support real changes in philosophy and practice, can make an enormous difference in schooling. If money is the *only* change, however, the results may be disappointing. These programs in which money matters involve the investment not only of dollars but also of time, effort, thought, and nerve.

"The answers are among us," says Tinsley. "We just need to be given the time to find them."

For Further Information

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How School Mathematics Can Prepare Students For Work, Not Just for College

Curricula that focus on real-life applications of concrete mathematics can meet both academic and workplace expectations

BY SUSAN FORMAN AND LYNN ARTHUR STEEN

A carpenter's plan for a built-in kitchen shelf unit calls for 1" x 8" oak boards of four different lengths, ranging from 2'10" to 6'6". The local lumber yard sells oak boards in lengths of 6, 8, 10, 12, and 16 feet, but the shorter lengths are more costly per board foot. The carpenter must decide what combination of shelf lengths and purchased boards will be most economical.

A financial assistant in a major HMO must make projections about the effects of increasing co-payments while broadening the scope of coverage, all without changing premiums. Using a standard spreadsheet template that covers all the HMO group policies, he locates the cells where projection calculations are made. He must study these cells to understand how their formulas now work, then modify them to reflect the proposed changes, and finally run several test cases to be sure his changes do what was intended.

A truck driver for an appliance company must plan the day's schedule and load a van whose cargo space measures 9'3" x 6'6" x 7'. The day's deliveries include four refrigerators, each in a 34" x 34" x 68" carton; three stoves, two in 32" x 28" x 50" cartons and one in a 32" x 28" x 74" carton; and a freezer in an 80" x 30" x 30" carton. The driver also has to pick up two television sets and a washing machine for repairs. Before setting out, he will use a map to plan his route and to notify each customer of the estimated pickup or delivery time.

These situations are examples of mathematics in context. Real-life problems are, typically, very concrete but not necessarily very straightforward. Generally they can be solved in many ways, and do not have unique "correct" answers. Several strategies may be "good enough," even if one may be technically a bit better than others.

Solving problems in actual work situations—unlike the short exercises found in most mathematics texts and classrooms—usually involves data with realistic measurements expressed in common units. The technical skills required to solve such problems are fairly elementary: measurement, arithmetic, geometry, formulas, simple trigonometry. The problem-solving strategies, however, often require a sophistication that few students get from current school mathematics: planning and executing a multi-step strategy; considering tolerances and variability; anticipating and estimating relevant factors not immediately evident in the data; careful checking to assure accuracy.

Concrete Mathematics

Mathematics in the schools still suffers from public rejection of the "new math," which brings up images of set theory and spelling drills on the word *commutative*. Whereas "new math" tried to bring out the power and beauty of general, abstract mathematics, math at work is concrete. It is spreadsheets and perspective drawings, error analysis and combinatorics.

Critics worry that a curriculum focused on useful math will deny opportunity to talented students.

Concrete mathematics gives students a stronger basis for abstract thinking in later courses, a greater appreciation for the utility of mathematics, and a better understanding of the discipline. Its "what if" analysis provides opportunities for students to formulate and test their own hypotheses.

Unfortunately, concrete mathematics can easily be misinterpreted as merely the old "general math" in modern disguise. Courses in practical mathematics (called "consumer math," "general math," or "shop math") have always been held in low esteem. Too often such courses emphasize easy "cookbook" solutions, attract poorly prepared and unmotivated students, are taught by teachers with little interest in mathematics, and provide narrow skills of little benefit beyond classroom exercises. Such courses are rightly disparaged as dead-ends. Instead of expanding students' horizons, they limit choices.

Concrete mathematics is not cookbook math. It is specific but not narrow, focused but not prescribed. It is found embedded in rich, authentic examples that stimulate students to think mathematically. Like personal anecdotes in politics and characters in literature, concrete cases are what one remembers. Concrete, practical mathematics works. The challenge for schools is to make what works respectable.

Mathematics for All

In an earlier time, when people rarely changed jobs and occupational skills were well-defined, school mathematics branched in the middle grades into two tracks—a one- or two-year "terminal" track for students not planning on college, and a full four-year curriculum for those who are. That time of simple, fixed career paths is long gone. The National Council of Teachers of Mathematics (NCTM) now recommends that the first three years of high school mathematics be designed for *all* students, whether or not they plan to attend college.

Although dictionaries define mathematics as the science of space and number, in fact it is more the science of patterns. Math provides a common framework for analyzing the mysteries of daily life. Exploring, estimating, classifying, and optimizing are useful for personal financial planning, for making business decisions, for interpreting public policy debates.

Mathematics enables us to represent relationships, and thus to make plans that can be trusted; to classify behavior, and thus to separate the predictable from the random; to model processes, and thus to anticipate the conse-

quences of our actions. As in earlier centuries when mathematics emerged as the language of science, so now a different mathematics has become the language of the technical work force.

The response of schools to new developments in mathematics should not be simply to add new topics to an old curriculum. We must instead focus on the forces for change in mathematics, not on the results of those changes. Instead of asking "What's new?" we should ask "What's newly useful?" Forty years ago, only engineers needed to know about digital electronics; now every technician must. Today's efforts to flatten management structures are changing many blue-collar jobs into "white-smock" jobs in which workers are expected to make decisions based on data continuously gathered from the work environment.

Watered-Down Curricula?

Emphasizing math for work gives us perspective on the view that broadly implemented standards will result in a watered-down curriculum. Those who express this fear argue that, in the name of "mathematics for all," talented students are being denied the opportunity to develop advanced skills of reasoning and symbol manipulation. They worry that if the entire curriculum is focused too narrowly on what is deemed useful for all students, then topics whose payoff is years away (like mathematical induction and the binomial theorem) will be neglected, and the better students will suffer.

But work skills require a sophistication and precision that can push even the best students to levels well beyond those found in most of today's classrooms. As they secure a broad foundation of examples and concrete mathematics, students will build their own connections between mathematics and the world in which they live and work. A grounding in specifics leads naturally to more abstract thinking. Workplace mathematics mirrors good pedagogy by moving from the specific to the general, from the concrete to the abstract.

Moreover, courses that put mathematics in context improve student motivation, and thus improve learning. Students will discover in their own experiences answers to the question "How am I going to use this?" Changing from a traditional symbol-intensive curriculum to one embedded in authentic work situations will help teachers to identify and encourage students who reveal nontraditional aptitudes for math.

Knowing Versus Doing

The central intellectual issue in mathematics education is not pedagogy but content. We know what is required for effective teaching: active engagement with mathematics in context, supported by a sense of community that provides necessary meaning and motivation. We know much less about content. What is it that all students must learn? Do the particular topics learned really matter?

Some answers are easy: we want all students to learn to reason and calculate, to solve problems, and to communicate mathematically. Other questions are harder: do we want all students to be able to prove results, or to be able to solve quadratic equations?

The response of schools should not be simply to add new topics to an old math curriculum.

The key argument is about process versus product. Most people now recognize that doing mathematics (reasoning logically, solving problems) is more important than just knowing it (remembering formulas, memorizing algorithms). Yet this simple idea is radical. For teachers, it implies engaging students in the processes of mathematical thinking rather that in simply learning facts and formulas. This revolution in perspective is exactly what the NCTM hopes to accomplish through its standards: ensuring that students can *do* what formerly they were expected only to *know*.

The shift from product to process, from knowing to doing, requires that students engage mathematics as a whole, not just as a collection of separate topics. Although the development of mathematical expertise traditionally has been approached by decomposition into component skills, it is becoming clear that this "one rule at a time" approach does not work. "It is harder, not easier, to understand something broken down into all the precise little rules than to grasp it as a whole," writes mathematician William Thurston.

Thurston's advice for effective teaching derives from his experience, but it is the same advice we get from cognitive science, educational research, and workplace practice: present mathematics in a way that is "more like the real situations where students will encounter it in their lives—with no guaranteed answer," he says. "It is better to keep interesting unanswered questions and unexplained examples in the air, whether or not students, teachers, or anybody is yet ready to answer them."

Shifting the Balance

With the publication of the NCTM standards came a philosophical and practical shift in the balance of leadership. No longer are colleges in the driver's seat in setting goals for math education. Now school teachers and mathematics educators are calling the shots. But the new standards, like what they are meant to replace, still respond to the siren call of traditional calculus-prep mathematics. High school students are still identified as "college-intending" or not; the core curriculum for all students is to be the same for eleven grades—the curriculum taken by those identified as college-bound.

The motives for this recommendation are laudable and the logic nearly inexorable: if all students are to have equal opportunity, all must receive the same education, an education previously reserved for the "elite." Yet three out of four students move into the work force along a path that does not depend on a four-year degree. The mathematics most students will study after high school will be very different from traditional college mathematics and may not involve calculus at all.

A plumber is not a failed engineer. Going to work should not be interpreted as a failure to go to college. Neither are practical courses necessarily lesser versions of academic courses. Both can provide challenge, excitement, and significant education; both can serve students' search for vocation with dignity and respect. In shifting educational priorities from *some* students to *all* students, the NCTM standards implicitly accept the challenge of educating prospective plumbers as well as future engineers.

Students' experiences in school should reflect the world of work, and a strong program that prepares students for work will also equip them for success in college. These are the standards by which schools should be judged, and should judge themselves: to provide a coherent program in which work is a natural extension of study, and

school is a natural foundation for work. Concrete mathematics will thrive in such a program, and so will students.

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Susan Forman (e-mail: slfbx@cunyvm.cuny.edu) is professor of mathematics at Bronx Community College in New York City; Lynn Arthur Steen (steen@stolaf.edu) is professor of mathematics at St. Olaf College in Northfield, Minnesota.

New and Noteworthy

Brief notes on significant recent research in education

TECHNOLOGY AND LITERACY

Computer-Based Reading and Writing Can Be Effective if Sustained

The reviews on IBM's Writing to Read computer-based reading program have been mixed. In the latest independent study, Writing to Read and its new companion program, Writing to Write, have been found to be more effective than traditional instruction for early elementary students. But if students stop using the programs and revert to teacher-centered learning, many actually show declines in verbal ability and fall behind students who never used the programs in the first place.

Researchers Jim and Martha Chambless of the University of Mississippi explain this apparent contradiction: "If you take children who are learning actively on computers and suddenly place them in a teacher-centered environment, they don't know how to just listen and become teacher-pleasers."

The Chambless study involved more than 2,300 K-2 students in 34 schools across Mississippi. Students' verbal progress was measured in a number of ways, including scores on the Stanford Achievement Test. Statistically significant differences between the computer-instructed and the control groups were found across all racial and socioeconomic lines, but were particularly significant among students from poor families.

"By the end of the second grade, the experimental students' writing represented imaginative, interesting, well-developed stories with a logical flow from beginning to end," the researchers say. But this success was short-lived in schools that chose not to rent the necessary equipment after the initial evaluation period was over.

See: J. and M. Chambless. "The Effects of Instructional Technology on the Academic Achievement of 2nd Grade Students." Available from Martha Chambless, Dept. of Curriculum and Instruction, School of Education, University of Mississippi, Oxford, MS 38677.

RETHINKING SCHOOLS

Teaming and Mixed-Ability Classes Linked to Higher Achievement

Based on data from more than 11,000 students in 820 public, private, and parochial schools around the country, Valerie E. Lee of the University of Michigan and Julia B. Smith of the University of Rochester have concluded that students in schools that follow nontraditional "restructuring" practices learn more than students in more traditional schools.

The researchers define restructuring practices as those reflecting a more communal (rather than bureaucratic) school structure and that are relatively uncommon. These practices include interdisciplinary teaching teams, mixed-ability classes in math and science, cooperative learning, common teacher planning time, and flexible class time.

Achievement gains were measured using data from the National Education Longitudinal Study (NELS), which tested 11,794 students in eighth and tenth grades using questions drawn from the National Assessment of Educational Progress. Students from "restructuring" schools showed gains in four subject areas—math, reading, history, and science—that were 20 to 30 percent higher than those of students in more traditional schools. Students of high socioeconomic status scored higher than their peers of lower status in all types of schools, the researchers say, but the gap was narrower in restructuring schools than in traditional ones.

See: "High School Restructuring and Student Achievement: A New Study Finds Strong Links," *Issues in Restructuring Schools* no. 7 (Fall 1994); Center on Organization and Restructuring of Schools, University of Wisconsin, Madison, WI 53706; 608-263-7575. Available free on request.

READING DISABILITIES

Male/Female Brain Differences Provide a Clue

The recent discovery that males and females use their brains differently adds a key piece to the puzzle of why some people have trouble learning to read. Studies at Yale, Johns Hopkins, and other sites sponsored by the National Institute of Child Health and Human Development (NICHD) show that reading disabilities do not reflect a simple developmental lag but a deficit in the ability to decode words that can be permanent if not corrected early.

At least 10 to 15 percent of all children, the Yale research team says, need instruction specifically geared to enhancing their phonological awareness (the ability to identify and combine the sound units in words) if they are to become successful readers. And while schools identify four times as many boys as girls as reading disabled, boys and girls are actually affected in about equal numbers. Girls, however, seem better able to compensate for their disabilities.

"Any time a teacher sees a kid having trouble decoding or recognizing words, that should be a red flag," says Reid Lyon, director of research programs in learning disabilities at NICHD. Lyon suggests providing "close, explicit instruction in decoding within a meaning-based framework, so that the goal of reading is preserved." Future research will focus on finding differences in the functioning of normal and learning-disabled individuals' central nervous systems and on identifying effective treatment approaches.

See: Journal of Child Neurology 10, no. 1 (January 1995). Special issue on reading and learning disabilities.

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QUALITY CONTROL

The Textbook Business: Education's Big Dirty Secret

Critics of the way schoolbooks are written, marketed, and selected find them bland, inaccurate, and unlikely to help students learn to think

BY NANCY WEBB

A 1930 guidebook issued by a major textbook publisher (still in business today) told American teachers that textbooks were their most important tools, adding that experts "are preparing books of such excellent quality educationally and mechanically that teachers should find in these modern texts the means of solving many, if not most, of their teaching problems." Sixty-five years later, textbooks themselves have become one of the problems. As students' and teachers' needs for sophisticated, complex, and up-to-date resources grow in the modern information age, textbooks have become increasingly bland, simplistic, inaccurate, and obsolete.

INSIDE

A New View of Gender Equity In Education

Computers in the Classroom: Where Are All the Girls?

Thoughtful teachers have long been aware of the limitations of textbooks, and the quality of teaching materials has become more of a public issue in recent years. But there is little evidence to suggest that classroom practice has changed much since the late 1970s, when Paul Goldstein found that teachers organized more than 75 percent of class time around textbooks: assigning chapters for reading, going over text pages in class, and using the end-of-chapter questions and "suggested exercises" as homework.

The best teachers aren't using textbooks much anymore; they are helping kids discover the sources of learning.

What has changed is the textbook publishing business. William Bennetta, editor of the *Textbook Letter,* a kind of *Consumer Reports* on schoolbooks, notes that educators usually "start with the assumption that schoolbooks must be legitimate and respectable." As a result, he says, "the business of textbooks receives alarmingly little attention in evaluations of our overall educational system." Bennetta and his colleagues at the independent nonprofit California Textbook League, which publishes the *Textbook Letter,* keep a close eye on the industry and find it, as a whole, "a big dirty secret."

Purina Kid Chow

Rather than market textbooks to students, publishers pitch their products to the people who make decisions, often selection committees made up of political appointees. Bennetta likens this process to the marketing of pet food. "The idea that pervades every step in conception, production, and marketing of the product," he says, "is to appeal to the person who buys the dog food, not to the dog. The dog is of little concern here for the simple reason that dogs don't have money and don't make buying decisions."

Students almost never pressure the selection committees that choose textbooks on their behalf, whereas parents and organizations with ideological, religious, and political agendas exert enormous pressure—and get results. Even if these pressure groups are un-

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able to force adoption of their particular party line in the books selected, they often succeed in creating enough heat to make publishers take a bland, neutral stance on controversial topics—or avoid them altogether.

"Saying that a relatively small number of activists cannot have much effect on textbooks is like looking at the shape of a bumblebee and saying, 'That thing can't possibly get off the ground,'" says Joan DelFattore in *What Johnny Shouldn't Read: Textbook Censorship in America*. "Maybe it can't, but it does."

Textbooks have become collections of slogans, factoids, and one-liners; accuracy and complexity are among the casualties.

She has found that a few far-right, fundamentalist national organizations "have become very adept at supporting grassroots legal challenges and at influencing the state-level textbook adoption process, thus affecting the content of textbooks purchased by school districts and private schools throughout the country." She notes that evolution did not find its way into schoolbooks "until California and Texas state politics permitted its emergence," long after scientists had concluded that the theory ranked in importance with those of electricity and gravity. Those two states together represent 20 percent of the national textbook market, and authors must struggle to create books that will satisfy selection criteria—often contradictory—in both, again sometimes choosing to leave out rather than explore controversial material. Publishers also routinely create different versions of the same book to sell in different regions of the country.

DelFattore traces some of America's current textbook controversies to the 1960s, when publishers first began to come under pressure because of their penchant for rationalizing away uncomfortable truths. One American history text of the period, for example, described slavery as "a useful and humane way to care for the needs of simple people who would be lost on their own in the complex American scene."

"With the advent of civil rights and feminism," says DelFattore, "and with the rise of pollution, overpopulation, drug use, and the threat of nuclear war, the key word in textbooks became relevance. People who were not white or middle class and did not live in traditional nuclear families began to demand representation in textbooks. Textbooks also began to talk about the importance of international understanding and independent thinking in today's complex and troubled world."

All this was "deeply disturbing to people who do not want education to describe a changing social order or promote independent decision making," she says. Textbook publishing became a battleground between liberals promoting multiculturalism, environmentalism, and globalism on the one hand, and conservatives who would rather have students learn to accept the status quo on the other.

Uncritical Thinking

Bennetta argues that almost all current textbook censorship is self-imposed by an industry determined to alienate no one and please all. DelFattore quotes a publisher's representative saying, "When you're publishing a book, if there's something that is controversial, it's better to take it out." James Loewen, a professor of sociology at the University of Vermont and author of *Lies My Teacher Told Me: Everything Your American History Textbook Got Wrong*, reports that 92 percent of teachers are unwilling to initiate discussion of controversial issues. "Among the topics that teachers felt children were interested in but that most teachers believed should not be discussed in the classroom," says Loewen, "were the Vietnam War, politics, race relations, nuclear war, religion, and family problems such as divorce."

In the war for students' minds, accuracy and complexity are among the casualties. Earth science texts reduce complex environmental issues to simplistic questions: "Should the timber industry be allowed to clear-cut forests? Or should the timber industry be banned?" Health texts report wishful thinking as fact: "The majority of teens do not have sex."

Accuracy is essential to critical thinking—the ability to compare conflicting claims and determine truth. The authors of *Liberty and Learning in the Schools: Higher Education's Concerns*, a recent report by the American Association of University Professors, point out that students whose pre-college education is based on "official" textbooks are "not likely to understand how to deal with shades of meaning or with controversial topics."

Bennetta argues that textbooks do nothing to encourage critical thinking, and in fact do much to discourage it. "The idea of cause and effect is generally banished from these books," he says. "To show cause and effect you actually have to use a long sentence and link two different things together. These books are written in short sentences, each representing a slogan to be memorized, with no conjunctions, no complex sentences of any kind, rarely even a compound sentence. They distill information into a form that is amenable to brainless evaluations, in which students' performance is held to be good if a sufficient number of slogans, factoids, and one-liners have been memorized. The kids don't understand, they don't know what is related to what. But they can fill in the blanks."

Superstition as Science

Bennetta, a chemical engineer and biologist, founded the Textbook League in 1985 with two other scientists after looking at the middle-school science texts on the market. "They were grotesquely outdated," he says, "loaded with ridiculous mistakes, superstitions,

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and fundamental misconceptions, so poorly organized and incoherent they were unreadable." What especially appalled him was that "all those worthless books had already been approved by the state's official textbook evaluation panel."

He suggests that those who choose textbooks rethink their fundamental purposes and not frame selection as a "horse race" in which some book has to win. "What if you don't have a textbook?" asks Bennetta. "If you know your subject, you can put together a course without a textbook, and if you don't know the subject, these books aren't going to save you."

"The best teachers are not using textbooks very much anymore," says Harold Howe II, former U.S. Commissioner of Education. "Good teachers help kids to discover the sources of learning and create their own texts in the process." Many teachers and librarians are helping students find original sources to supplement or replace texts. The Centers for Disease Control's reports on AIDS, for example, can fill the vacuum most textbooks leave around that subject. Computer links now allow students to talk with astronauts on the orbiting space shuttle rather than have to read dry text on space exploration, and to do actual environmental field research—comparing their observations, for instance, with those of students in other communities to gauge the effects of pollutants as they move downriver.

Bennetta says not nearly enough American textbook publishers are prepared to take on such real world issues, and that "with every passing year, with each passing textbook production cycle, the books get farther and farther from reality. Kids learn less and less that has anything to do with the world in which they are actually living."

The trouble with textbooks is not just the fault of publishers, adds Howe. He blames the academic establishment as well—"stuffy university people who don't give any time to reviewing books to be used by kids"—and calls for a new system of independent review of all materials to be used in classrooms, including films, videotapes, and software, as well as books. Educators at every level need access to more resources like the *Textbook Letter* to help them judge the quality of materials being sold to schools.

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Nancy Webb, a former teacher who now writes about education, lives in Mill Valley, California.

GENDER EQUITY

A Narrowly Gender-Based Model of Learning May End Up Cheating All Students

Single-sex classrooms and other newly popular strategies for closing the gender gap ignore the pressing need to see students as individuals

BY ROBERTA TOVEY

Do schools systematically shortchange girls? Yes, say a growing number of researchers, educators, and social critics. This realization has sparked interest in a variety of programs and policies intended to help girls get more out of school, from teaching techniques tailored to girls' needs to insulating girls from boys in math and science classes. At the same time, there is reason to fear that such programs and policies will deepen gender stereotypes, "water down" the curriculum, label girls as having "special needs," and ultimately cheat all students.

It may be time to shift our focus, say some researchers. Instead of thinking in terms of gender, it may be more useful to expand our concept of learning and teaching. "What we're talking about is modes of teaching as well as modes of learning," says Nona Lyons, director of teacher education at the University of Southern Maine. "We have to give students the broadest possible experience of learning."

Ask the Kids

Lyons and other researchers in the field of gender equity are moving towards a more individualized approach to learning and teaching. "What sense do kids themselves make out of their experience?" asks Lyons. She has been interviewing students to try to understand how each individual learns. "What do *they* find nurturing? Where do they find an ally? How do they make their way through the schools?" Lyons resists referring to "girls" or "boys"; instead, she talks about "kids."

Indeed, Lyons avoids generalizing about the learning styles of the girls she has been interviewing. "The way kids learn is highly idiosyncratic," she says, recalling a student whose love of math countered gender stereotypes—not only was math one of her favorite subjects, but "she loved math because there really was a right answer." Kids, says Lyons, "can find support at school in a variety of ways."

Lyons suggests that teachers "do more investigation" of individual students. "Teachers can make inquiries

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about how kids learn—on even a simple level, such as, 'When you're doing this math problem, how do you go about it?'" Lyons describes a seventh-grader whose portfolio included a project about Plains Indians. "How did you become interested in the topic?" Lyons asked her. The girl answered that at first "I wasn't at all interested in the topic—but I became interested when I started to think about the everyday lives of these people, how they ate, dressed, worked." Teachers can use information like this to enrich students' "understanding of and connection to learning," says Lyons.

Shifting the focus from gender to the needs of the individual student does not mean dismissing the gender equity research of the last 15 years. The American Association of University Women (AAUW) published a review of the most important of these findings in 1992, entitled *How Schools Shortchange Girls*. The report was one impetus for the inclusion of a package of gender equity provisions in the 1994 Elementary and Secondary Education Act. Myra and David Sadker's 1994 book, *Failing at Fairness*, which painted a grim picture of how girls experience school, received wide attention.

These studies show that teachers pay more attention to boys in class, give boys more constructive feedback than they give girls, and in general send the message to girls that they are not as important as boys. Girls are steered away from subjects they need to compete in the job market, such as math, computers, and science. There is also agreement among researchers that as a result of these practices girls' achievement has suffered, that they fall behind in math and science in middle and high school, and that their ability to deal with challenges and failure is compromised.

Some critics question these studies. Valerie Lee of the University of Michigan says that *Failing at Fairness*, which is largely anecdotal, "does not contain an ounce of real research." And the AAUW has been accused of overstating findings, such as those on girls' self-esteem, in the course of pursuing a political agenda.

Inequity: A Two-Way Street

Researchers like Lee do not deny that there is a gender gap; they just point out that research and reporting have been one-sided and perhaps exaggerated. "Most gender-difference studies focus on the disadvantages of girls," observes Lee. "To the extent that girls actually experience some explicit or implicit sexism in their education, this is appropriate. But not all academic outcomes favor boys."

Lee and colleagues have found in a new study of eighth-graders that the most significant gender difference—engagement with academics—actually favors girls. (They define "engagement" as positive academic behaviors, preparedness for class, and attendance). Girls perform somewhat better in reading, while boys do a little better in math, science, and social science, but none of the differences are large. Lee's study was funded by the AAUW, but it has not yet been released.

Another new study by Larry Hedges and Amy Nowell of the University of Chicago yielded similar findings. The researchers analyzed test results in the core subjects and found that girls did better in reading and far better in writing; boys did better in math and science. A news story about this study in the *Boston Herald* headlined only half the findings: "It figures, boys best at math."

Single-sex classes can send a message that girls need special attention, which can be undermining rather than empowering.

"The public discourse around issues of gender in school needs some change," says Valerie Lee. "Inequity can, and does, work in both directions. The usual approach to studying gender differences in educational outcomes may not be truly equitable."

Some educators worry that, in focusing on making schools more welcoming for girls, we will inadvertently reinforce gender stereotypes. Annie Rogers of the Harvard Graduate School of Education says that designing teaching programs that are tailored specifically to help girls "is a potentially dangerous road to travel on, and can be distorted and misused." While such programs may be necessary to "right the balance of gender bias in schools today," Rogers says, there are dangers in any kind of affirmative action. "Not the least of these is that girls can be slated as having special needs, that is, special limitations or deficiencies in learning."

Single-Sex Classes

An increasingly popular strategy for promoting gender equity in schools is to create single-sex classrooms, especially in math and science, where girls traditionally lag behind boys after elementary school. "I think this is a terrible idea," says Valerie Lee. "The problem is that there is a basic assumption at work here—that males will dominate—and that that is okay. Instead of challenging the hegemony, we select these poor victims and put them in a setting where they can be protected."

"The cordoning off of girls into separate math or science classes," notes Rogers, "is a short-sighted or at best a short-term solution."

Even supporters of single-sex classrooms call it a temporary remedy. Charol Shakeshaft of Hofstra University regularly runs gender equity workshops for district administrators and teachers. She points to a review of 1,000 studies on single-sex education done for the YMCA, which showed clearly that "single-sex education is best for girls; coeducation is best for boys." Shakeshaft cautions that "as a long-term solution, single-sex education is a mistake." She regards it as "a short-term way of restoring students' confidence and interest so that they can go back into coeducational classes."

Susan McGee Bailey, executive director of the Wellesley College Center for Research on Women and coauthor of the AAUW report, has a similar perspective on single-sex classes. "They can send a message that girls need special attention, which can be undermining rather than empowering," she says. The truth of Bailey's observation is reflected in a recent suggestion, made by federal civil rights officials, that all-girl math classes in Ventura, California, schools be labeled "classes for the mathematically challenged" as a way to circumvent Title IX regulations, which specifically outlaw single-sex classes.

"The real issue," says Bailey, "is what should go on in the classroom. If it works in single-sex, why not use it in mixed classes?" Bailey, too, advocates a less gender-centered approach to equity. We can see biases in our system as strictly ones of gender, which require compensatory treatment. Or we can see them, Bailey argues, as symptoms of a too-narrow view of education.

Much schooling is based on a male

developmental model, emphasizing individualism and competition. This model poorly serves many girls, but also shortchanges a significant number of boys. "A very competitive environment may limit all students' academic development," says Valerie Lee. Studies have shown that students in highly competitive classes with little teacher support and stringent grading are more likely to skip class or be delinquent.

New studies of gender differences are finding that girls come out ahead in some areas.

Rather than pit one narrow gender-centered model against another, a better solution may be to focus on individual differences in students and to integrate a broad range of teaching strategies in classrooms. In this broader view, educators design programs not for a particular gender, but to enrich the learning experience of all students. "The characteristics of 'girl-friendly' classrooms also enhance boys' learning," says Lee. A 1991 study by Renee Petersen found that cooperative learning improved retention and learning levels of both boys and girls.

There is less emphasis in such classrooms on traditional hierarchical practices like lectures and question-and-answer sessions; paired learning is added to competitive learning techniques like spelling bees and math competitions; portfolios are used to assess aspects of students' achievement that are overlooked by standard tests. "Competition and cooperation are not qualities that *belong* to boys or girls," says Lee Anne Bell of SUNY New Paltz. "How can we create a classroom culture that includes all these qualities?"

Girls Who Love Physics

Many programs designed specifically to engage girls in science and math would be stimulating for any student. Ileana Jones, who teaches physical science at the all-girl Winsor School in Boston, has developed a hands-on approach to her subject. In one of her "engineering problem cycles," Jones asks juniors and seniors to research simple machines, then to use four of these machines to build a compound machine that can pop a balloon. Her fifth-graders put together circuits and set up a bicycle to generate power for running a train; her seventh-graders build lunar vehicles.

"Kids love science," says Jones. "You need to find out what a student is interested in and let him or her pursue these interests." Jones feels that observation, the basis of science, has "been played down—we need to get kids out there, doing research in the community." She teaches her students to go out and do their own observations, and to work at "becoming naturalists."

Efforts by Jones and other like-minded teachers at the Winsor School have dramatically increased enrollments in the school's physics classes. Winsor now offers three different physics courses, including A.P. physics and conceptual physics; the average high-school student at the school takes four years of science.

Hands-On Universe (HOU) is a pilot project in which high school students perform remote observations on professional telescopes using their classroom computers and the Internet. "The process is very visual and artistic as well as analytic and technological," says Jodi Asbell-Clarke, an HOU curriculum developer and teacher in Halifax, Nova Scotia. "We have found tremendous success in reaching students who thought that they 'couldn't do' or 'didn't like' science." She adds that the next step is to develop new HOU curricula "that specifically address the needs of nonreaders, non-English speakers, and all academic and economic backgrounds as well as gender."

Projects like HOU and the hands-on work at Winsor are inspired as much by principles of good teaching as by a desire to help girls learn. Jones says that an important way to interest girls in physical science is having "teachers who are excited about their subject." At a 1993 symposium on girls and the physical sciences, sponsored by Tufts University and the National Coalition of Girls Schools, a panel of college students spoke about what helped them most in pursuing science education. Though they spoke of such gender-specific factors as "female mentors who sought out students," the first thing they mentioned was "teachers who made science come alive."

"The themes and teaching strategies recommended during today's discussion can help serve all students," Jones said in her closing remarks at the symposium. "Women need to be a more equitable part of the 5 percent of this nation's population who are scientists and engineers. But what about the other 95 percent? In today's increasingly complex and technological society, we need *all* our citizens to be scientifically literate."

The Whole Pie

Assumptions about how girls behave and develop are limited by cultural bias, and characteristics often associated with gender may also be a function of social class. Carol Gilligan, Jill Taylor, and Amy Sullivan of Harvard's Graduate School of Education conducted a three-year study of urban girls who are at risk of early parenthood and dropping out. They observed that lower-class white girls do not seem to "lose their voices"—that is, become less outspoken and assertive—as they reach adolescence, in contrast to the middle-class white girls in Gilligan's earlier studies.

According to Taylor, these white girls "sound more like poorer African-American girls who do not tend to share the white middle-class cultural conventions of femininity—compliant, not loud or disruptive." Instead, Taylor says, "they have their own set of risks: they get into trouble, they are labeled as loud, bad girls." Taylor also observes that "class is much more difficult to talk about than gender."

Broadening our definitions of learning and expanding the range of skills we teach can help all students fare better in today's world. "In the real world," says Whitney Ransome, codirector of the National Coalition of Girls Schools, "things are not always yes or no, true or false, and you don't have to get the right answer in five minutes."

In contemporary Japanese-style corporate models, says Ransome, so-called women's ways of running a business are desirable. Cooperation replaces competition; collaborative efforts and learning take the place of traditional command and control management, where orders are issued from the top. "Businesses are moving away from a hi-

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erarchical, top-down structure to one that is more like a web," notes Ransome.

"All kids need a range of skills," says Charol Shakeshaft. "Boys need to work cooperatively; girls need to learn to compete. Just because girls may feel more comfortable in one mode doesn't mean they should ignore the other. We need to ask, 'What skills are girls more likely to have? What skills are boys likely to have? How can we give each of them what they're missing?' That way, when they grow up, they get the whole pie."

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Roberta Tovey is a writer, editor, and teacher in Boston.

New and Noteworthy

Brief notes on significant recent research in education

TECHNOLOGY AND LEARNING

Research on Multimedia Is Worthless, Says Technology Expert

Writing in the current issue of *Technos* magazine, educational psychologist Richard Lookatch argues that "there are no unique educational benefits from multimedia" and that research studies purporting to measure such benefits are fundamentally flawed (see "Six Myths . . . About the Uses of Educational Technology," *HEL*, September/October 1994). "The motivational effects and preferences of multimedia often cited in studies are a charade," says Lookatch, of the Agency for Instructional Technology. "What occurs here is blind belief in a new and novel machine, a machine that students find more interesting and easier to accept than a talking head in front of the class."

Lookatch maintains that studies of multimedia use in schools typically fail to meet basic standards of research design: they lack true control groups, pre-tests to equalize individual differences among subjects, and strategies to control for a variety of confounding variables. These flaws lead, he says, to the "Type I error"—in which the researcher finds benefits that aren't really there. He compares the current research to similarly flawed studies that supposedly demonstrated the superiority of televised instruction.

"Typically, the best teacher was selected to provide the televised instruction and given a full day to prepare," says Lookatch. "The progress of the group was then compared with the progress of students in conventional settings with average teachers who taught the usual load of classes and had the usual (minimal) time to prepare. The results hailed televised instruction as education's savior. The real finding was that better teachers with more preparation time and novel teaching tools resulted in greater student achievement."

Lookatch argues that the only advantages of classroom multimedia simulations are economic, not learning-oriented. "It may be a lot less expensive to use a flight simulator than hands-on flight training for pilots," he says. "But I seriously question the use of multimedia to supplant hands-on classroom science experiments or simple dissections in the biology lab. A computer simulation is clearly neater, cleaner, and easier, but it is not an experience. The true experience occurs on the lab table."

See: R. Lookatch. "The Strange but True Story of Multimedia and the Type I Error." *Technos* 4, no. 2 (Summer 1995): 10-13.

RETHINKING SCHOOLS

Comer's School Development Program Has Little Effect in Hartford

An independent two-year evaluation of the School Development Program (SDP), created by psychiatrist James Comer of the Yale Child Study Center, concludes that its implementation in six Hartford, Connecticut, elementary schools "has made little difference to children in any of the schools." The evaluators found that teachers and principals worked hard to implement the program, but were stymied by a lack of effective staff development. Problems included confusion about the concepts of child development on which the program is based and the lack of a clear commitment to the program from the central administration.

The SDP is a widely praised school restructuring effort targeted at elementary and middle schools serving children at high risk of failure. It is premised on the idea that personal relations between children and school adults are at the heart of teaching and learning, and that increasing adults' knowledge of child development and cultural differences will improve children's school performance (see "School-Parent Relationships That Work: An Interview with James Comer," *HEL*, November/December 1988).

The evaluators, Barbara Neufeld and Mary Ann La Bue of Education Matters, reported that a lack of learning opportunities for staff doomed the program in several areas. "No one with whom we spoke is clear about what is included in the child development ideas that are supposed to undergird the SDP," they wrote. They also found that, although the SDP stresses the importance of good relations among people in the schools, staff members had no idea how to go about improving poor relationships and "were unable to use the process to deal with troubled, pervasive ethnic/racial relationships

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among adults that negatively impact the climate."

The evaluators faulted the central administration for allowing the SDP to be "invisible and of no particular priority" in the large array of reforms on the superintendent's agenda.

See B. Neufeld and M. La Bue. "The Implementation of the School Development Program in Hartford." Unpublished paper, 1994. Available from Education Matters, P.O. Box 1656, Cambridge, MA 02238, 617-868-0370. $10.

EDUCATING THE 'GIFTED'

Entering a 'Big Pond' May Dampen Students' Confidence

A group of Australian researchers has found that students who attend special classes and schools for the gifted and talented (G&T) often experience declines in their academic self-concept as a result. The discovery of this "big-fish-little-pond effect," as defined by Herbert W. Marsh and colleagues at the University of Western Sydney and the University of New South Wales, supports earlier findings by Marsh but challenges other studies that have found only benefits for students in G&T programs.

The researchers surveyed students age 9 to 12 in two metropolitan Sydney G&T classes, along with students comparable in age, gender, and measured academic ability in mixed-ability classes. The students in the special classes showed lower confidence in their math, reading, and general scholastic ability over time and in comparison with their peers in mixed classes. Nonacademic measures of self-concept, such as those involving appearance and peer relations, did not appear to be affected significantly by the G&T programs.

"The results of the present investigation should not be interpreted to mean that academic G&T programs are bad, but merely that the participation [in them] may have possibly unanticipated negative effects," the researchers note. To counteract these effects, they recommend that teachers try to discourage competition and comparison among students; develop assessment tasks that emphasize students' individual strengths; provide feedback based on established criteria and individual growth rather than on comparison with peers; and emphasize to each student that he or she is able and has unique abilities and accomplishments.

As Marsh and colleagues acknowledge, some might argue that becoming a little fish in the big pond of G&T education can give children a necessary dose of reality. But as one of the study's reviewers notes, "Of course they get a different view of the world when they are with other bright children—the halos and wings they assumed were their 'gift' may seem a little tarnished . . . but, at the same time, to preserve their sense of power, energy, and effectiveness, they need support in redrawing a healthy vision of themselves."

See H. Marsh et al. "The Effects of Gifted and Talented Programs on Academic Self-Concept: The Big Fish Strikes Again." *American Educational Research Journal* 32, no. 2 (Summer 1995): 285-319.

TECHNOLOGY AND GENDER

Computers in the Classroom: Where Are All the Girls?

Alarmed by a growing gender gap and its implications for women's educational and career options, educators are looking at ways to change computer culture

BY ELLEN TARLIN

Amy Bruckman, a doctoral student at the Massachusetts Institute of Technology, tells a story about being at a large family gathering and visiting with her young male cousins who were crowded around a Nintendo game in an upstairs room. After a while, some of her young female cousins walked by, looked in, and were shocked.

"Amy!" the girls cried, tugging at her sleeve. "What are you doing in the Nintendo room? Girls aren't supposed to be here."

"That's a sad statement," says Bruckman, who is working on ways to get kids more involved with technology. "They have a very strong gender association with computer games."

"It's not a coincidence," notes Frances Morse, who is doing research at Harvard on girls and technology, "that one of the most popular Nintendo products is called Game*boy*."

The gender connection doesn't end with games. Numerous studies have found inequities in technology use in schools. Boys not only tend to dominate computer use in classrooms but also greatly outnumber girls in computer science classes. Girls, consequently, don't receive the same exposure to technology.

Girls begin to lose interest in computers around the fifth grade, says Ronald Anderson, a sociologist at the University of Minnesota. This gender gap widens through high school and college, where three times as many men as women earn computer science degrees, according to the National Science Foundation (NSF). And the gap is growing.

The implications of this gap for women's career opportunities are significant. While fewer women earn technology degrees, the number of computer-related jobs increases. The NSF reports that, by the year 2010, one in every four new jobs will be technically oriented.

Computer Culture

Researchers report that girls seem to feel less comfortable with computers and like them less than boys do. Cornelia Brunner and Margaret Honey, of the Center for Children and Technology in New York City, found that boys describe technology in much more positive terms; boys find computers more "enjoyable," "special," "important," and "friendly."

"What separates girls from technology?" asked Bruckman at a recent conference of the National Association of Independent Schools. "It's not fear and it's not ability. It's about people's sense that 'This isn't what a proper girl does.'" Girls get subtle and not-so-subtle messages from parents, peers, and society that they are not welcome in the predominantly male domain of computers, argues Bruckman.

Sherry Turkle, a sociologist at M.I.T., believes the computer itself has no inherent gender bias, but that computer culture leaves girls out. Computer company executives and software designers are predominantly male; video games, also designed mostly by men, are dominated by images of competition, sports, and violence. Seventy-four percent of the characters in computer games are male, and female characters are usually damsels in distress.

It's not a coincidence that one of the most popular Nintendo products is called Gameboy.

The predominantly male Internet is attracting more women, but users of the newer, more powerful areas of the Net, like the World Wide Web, are still 85 percent men. Math, science, and computer teachers are mostly men; there are few computer-using female role models at school. At home, although one-third of American families have at least one computer, they are bought and used mainly by males.

Computer culture is reflected in the language of technology, which often has violent or military connotations. We give the computer a "command." If the system fails, we say it "crashed." Many IBM-type computers are programed to ask if we want to "abort." On the Macintosh, the symbol for a crashed program is a bomb.

Turkle believes that women are faced with a choice of putting themselves at odds either with the cultural associations of technology or with the cultural associations of being a woman. "The computer becomes a personal and cultural symbol," writes Turkle, "of what a woman is not." Girls are thus forced to relate to computers differently than boys do.

Turkle describes two different styles of relating to technology: transparent and opaque. Transparent users are interested in technology for technology's sake. They are thrilled by the power and performance of the computer. They think of machines as an extension of their own power or as a way to overcome physical limitations. Opaque users, on the other hand, see the computer as a means to an end—as a tool for designing things that serve a purpose. They just want the computer to work. Girls tend toward the opaque style, says Turkle; boys are more often transparent users.

Countering Gender Bias

Educators have begun to develop strategies to counter the gender bias of computer culture. When Judy Snow first visited the Computer Clubhouse at the Computer Museum in Boston, as part of her work in the Technology in Education program at Harvard, her reaction was "Where are all the girls?" She asked program manager Sam Christy, who said that only 7 percent of the students who visit the Clubhouse are girls. Some boys return hundreds of times, he said, while girls usually come only when their schools plan a visit. When Christy said he'd been wanting to get girls more involved, Snow volunteered to set up a mentorship program.

The Clubhouse established Monday afternoon girls-only hours, and Snow visited local schools to recruit participants. "All-girl situations aren't the only answer," says Snow, "but they're one way to help girls gain confidence."

Snow and Christy agree that creating a comfortable environment is important. This means clustering computer stations in groups rather than lining them up in military rows, and having good female mentors. The girls should be self-directed, they say; students should choose their own activities and not be told what to do. That means the mentors don't always know the answers to software questions, but work collaboratively with kids to discover possibilities. "Typically," says mentor Annie Valva, "what happens is the kids teach the mentors."

Clubhouse girls now use computers to write stories, digitize and manipulate photos of themselves, and create animation sequences, and they are writing and illustrating their own dictionary for a school project. Having software that girls like is important. "Girls often think of computers as being for science and math," says Christy. "But what they produce here is art."

Studies have found that girls seem to prefer computer activities that involve collaboration, cooperation, and working interactively. Girls also prefer creative, open-ended computer situations—nonlinear games and activities where there is more than one right answer, or more than one way to proceed.

At M.I.T.'s Media Laboratory, Amy Bruckman and other researchers are exploring the collaborative learning potential of "multi-user domains," or MUDs. These are "virtual places" where groups of like-minded people meet via computer network for social or professional purposes. The complex characteristics of the computer environment in a MUD are created by the participants working collaboratively. Because building a MUD is part creative writing and part computer programming, Bruckman believes MUDs can be a powerful tool for engaging students who are less intrinsically attracted to technology.

One education-related MUD that is already a roaring success is the Media Laboratory's "MediaMoo," a virtual community of people—including many women—who are doing research on media and learning. Set up in January 1993, MediaMoo now has 1,000 members from all over the world. Many are writing teachers, who especially enjoy MediaMoo's Tuesday Night Cafe, a kind of coffee house in cyberspace where teachers gather to talk about using computers to teach writing.

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Ellen Tarlin is a teacher and freelance writer living in Boston.

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INTEGRATING THE CURRICULUM

Moving Beyond Traditional Subjects Requires Teachers to Abandon Their 'Comfort Zones'

Teachers' fears, complacency, and college entrance requirements all help keep what many consider a good idea on the fringes of education

BY MICHAEL SADOWSKI

About a fifth of the seventh-graders at Radnor Middle School in Wayne, Pennsylvania, spend the entire year studying the local watershed. Except for foreign-language classes, their curriculum is centered exclusively on this project, incorporating activities that would normally be classified under English, science, social studies, art, and other traditional subjects.

Students conduct laboratory tests on water and soil samples. They study the history of the people who have lived in the region since pre-Columbian times and compose diaries and newspaper stories depicting these people's lives. In a creative writing assignment, they imagine themselves as drops of water moving through various stages of the water cycle.

The Watershed program, as it is known, places a heavy emphasis on field work. Students spend between 40 and 60 school days outside the classroom, studying a water treatment plant, a power plant, and a local landfill. They visit Revolutionary War battle sites, go canoeing on the Schuylkill River, and study the art of area native Andrew Wyeth at the Brandywine River Museum.

While some educators might consider such a heavy emphasis on one theme overkill, several of the program's outcomes have been impressive. According to results of pre- and post-tests, Watershed students consistently show the greatest writing improvement of all seventh-graders in the school. Their standardized test scores in other subjects equal or better those of their peers who receive traditional instruction in the separate disciplines.

"And I consider that a success," says teacher Mark Springer, "because we're not teaching to the tests." Student evaluation in the program is based on narrative assessment, not letter grades.

Springer and Watershed co-founder Ed Silcox take pride in the program's connection to real life, which they say is apparent to students. "Learning things hands-on is much better than hearing about them," wrote former Watershed student Jessica Jones in an essay about her experience. "While my friends in the regular program sit in classrooms and study a particular subject for 45 minutes, I get to experience learning in the real world."

Students readjust well to traditional instruction the following year . . . "They learn to grovel for grades again pretty quickly."

Word of mouth about the program among students and parents has been extremely positive. Although there is room for only about 36 students (approximately 20 percent of Radnor's seventh-graders), more than three-fourths apply for Watershed, now beginning its ninth year. Admission is by

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lottery, except that male-female balance is maintained. Participants appear to readjust well to traditional instruction in eighth grade and high school, or, as one parent put it, "They learn to grovel for grades again pretty quickly."

In a district study, the program's per-pupil cost was found to be $300 to $400 less than that of the school's regular instructional program. The savings come from the fact that there are no textbooks; there is less teacher contact time per pupil (because there are only two instructors); the teachers use fewer preparation periods; and there is virtually no need for substitutes, as Springer and Silcox can cover for each other if one is absent.

Teacher Trepidation

Given all that Watershed has going for it, one might expect the school to have expanded it by now to encompass the entire grade, but Radnor's other teachers have resisted. One reason, says Springer, is that in this affluent community outside Philadelphia "there seems to be an attitude that 'if it ain't broke, don't fix it,' since over 90 percent of the students here will go on to college anyway."

An even bigger problem is that teaching this kind of integrated curriculum violates what John Lounsbury of the National Middle School Association calls teachers' "certification comfort zones."

"A lot of teachers are insecure about teaching what they consider someone else's subject," says Springer. Watershed requires Springer and Silcox to work in ways very different from what most teachers are used to. Originally trained as secondary English and science teachers, respectively, they now find themselves also teaching art, music, industrial arts, and physical education as the need for activities in these disciplines arises.

State laws can be an obstacle to allowing teachers to work outside their areas of certification, but there are ways to work around them. Radnor Middle School applied for and received a waiver from the state to proceed with the Watershed program. Some states, like Wisconsin, offer general certification through grade nine. Even in states where certification requirements seem prohibitive, some interdisciplinary teams have met requirements by making sure they have the necessary areas covered among the group.

Nevertheless, the trepidation of Radnor's teachers is not unusual. Nan Porter, instructional supervisor for the Houston Independent School District, also encountered resistance from teachers and administrators in her efforts to promote a 1987 initiative to bring curriculum integration to all Houston middle schools. Many schools (which are under site-based management) still have not implemented it.

Kids whose teachers worked in interdisciplinary teams felt more "bonded" to the school than others did.

"Teachers hold onto their subject areas tenaciously," says Porter. "It's not the way they were taught, so it can be a real uphill battle."

But are teachers and administrators who resist going beyond their disciplines wise to be wary? Do Watershed and programs like it really produce the best outcomes, or is the old-fashioned subject-centered approach best for students? With a host of factors complicating the picture, research findings on integrated curricula provide few concrete answers.

Measuring Outcomes

The lack of any general agreement on what "integrated curriculum" means (see box, page 3) makes it hard for researchers to measure the effects of such programs. Another problem is deciding how to measure what happens when an integrated curriculum "works." Standardized tests are still among the most common measures of students' learning, but they are blunt instruments for gauging the success of curriculum integration.

In a new review of more than 100 studies, former Kent State University professor Gordon Vars concludes cautiously that students in integrated programs "do as well as, and often better than, students in conventional programs." A 1992 study by Valerie Lee of the University of Michigan and Julia Smith of the University of Rochester found higher achievement among eighth-graders in schools where teachers worked in interdisciplinary teams. But a 1991 Johns Hopkins University study concluded that departmentalization in the middle grades was more effective than team teaching for some students. While one might assume that instruction on teaching teams is more "integrated," Lee and Smith note that it is impossible to determine the level at which the curriculum is fused in each classroom.

Proponents of integrated curricula are quick to point out that high scores on standardized measures of achievement are not their primary goal anyway. Several recent studies have found less tangible but perhaps more significant benefits of interdisciplinary teaching. A 1992 survey by Joanne Arhar of the University of South Florida of more than 5,000 seventh-graders found that those attending schools in which teachers participated in interdisciplinary teams felt significantly more "bonded" to teachers and to school than students in nonteam schools. The attitude difference was greater for students coming from poorer homes, and included improved relationships with peers.

Arhar suggests that interdisciplinary work can help bolster the achievement of students who might otherwise be likely to drop out. "Support from both

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What Is an 'Integrated Curriculum' Anyway?

The term *integrated curriculum* means different things to different people. Researcher Gordon Vars says the problem of terminology makes comparison and evaluation of the practice difficult. "Approaches to interdisciplinary curriculum have borne many different labels over the years," he says. "Even a seemingly simple concept like interdisciplinary teaming means very different things in each situation."

The words *interdisciplinary* and *integrated* are often used interchangeably, but James Beane of National-Louis University, a leading consultant on curriculum integration, draws a distinction between them. "When you go beyond the separate-subject curriculum, you end up in one of two places," depending on whether or not you intend to retain the separate subjects, says Beane. Selecting a theme and building lessons around it from within teachers' individual disciplines (a common practice in middle schools today) is multidisciplinary or interdisciplinary by Beane's definition.

Integrated curriculum, he says, is a different animal. It involves a complete dissolution of subject-area boundaries, with the subjects serving as tools that are brought into instruction only as needed, as they "integrate" naturally. (See "Knowing No Boundaries," page 5.)

Heidi Hayes Jacobs of Columbia Teachers College, who has advised more than 600 schools on the subject, says that instructional practices vary widely along a continuum ranging from parallel disciplines (in which an English teacher and a history teacher, for example, might both be teaching about World War II but in different rooms with different lesson plans); to interdisciplinary units and courses, which bring together two or more "subjects" for a finite period; to the "integrated day," similar to Beane's model for eliminating subject boundaries entirely.

Robin Fogarty, another integrated curriculum theorist and consultant, uses ten different terms to describe degrees of integration, from "fragmented" to "networked," with "integrated" as the eighth highest degree of fusion. And Susan Kovalik, author of *ITI: The Model. Integrated Thematic Instruction*, bases her curriculum design on recent findings in brain research, which she says indicate that children learn more effectively when studies are integrated.

This confusion of terms can be a barrier to practitioners who are trying to work together and speak a common language. "I have heard teachers refer to their 'interdisciplinary unit' when, in fact, their meaning of the term is 180 degrees different from their colleagues' down the hall," says Jacobs. "It's critical that a faculty agree on its operational definition."

peers and teachers enhances students' ability to build confidence, participate in academic and non-instructional activities, and become committed and connected to school goals and school practices," she writes. "This support is particularly crucial in schools with high percentages of students whose personal and social backgrounds do not offer the social capital available to their more advantaged [peers]."

Research has also linked interdisciplinary, teamed schooling to other favorable outcomes that may have an indirect effect on student achievement. A 1992 study by Thomas Gatewood of Virginia Polytechnic Institute and State University and colleagues found that teaming can help mitigate teachers' stress and increase their feelings of professionalism. And a 1985 study linked interdisciplinary middle schools with fewer discipline problems such as tardiness, truancy, vandalism, and theft.

But there is no conclusive research on the long-term outcomes for students in programs like Watershed. Gordon Vars calls for the development of better assessments of higher-order thinking skills, which he says are "surprisingly rare, considering their importance in education."

Resistance at the Top

Integrated curricula have found greatest acceptance by far in the elementary and middle grades. High schools have been much more resistant. Only one-fifth of U.S. high schools reported in a 1994 survey by the Educational Research Service that they had interdisciplinary teaching "in general use," and more than half offered no interdisciplinary studies at all.

Even at the University of Chicago Lab Schools—founded in 1896 by John Dewey, an early champion of curriculum integration—the high school curriculum is still largely traditional. Dewey advocated a child-centered curriculum uniting school with real-life issues and incorporating larger ideas about democracy, community, and ethics. His ideas have influenced many leaders in today's integrated curriculum movement, but Lucinda Lee Katz, director of the Lab Schools, says she has trouble living up to Dewey's legacy. The schools have had great success with integrated curricula at the preschool, elementary, and middle levels—and with just one interdisciplinary senior seminar incorporating English, art, music, history, science, and foreign language. But the high school curriculum is otherwise strictly based on the old familiar disciplines, and Katz sees little hope for change.

One of the biggest obstacles, Katz argues, is that high school curricula are driven by the entrance requirements of the nation's top colleges. "As soon as colleges say they're looking for a certain kind of kid," she says, "high school counselors jump, and the curriculum follows from that. The big universities say they want well-rounded students, but they also want A.P. courses. So our students aren't sleeping anymore—and they aren't able to learn anything in depth."

Katz also agrees that it is hard to get high school teachers to move away from their disciplines. "A lot of high school teachers see themselves as mini-professors," she says. "They're reluctant to accept the idea that the whole is greater than the sum of the parts."

Although the nature of the elementary school classroom naturally lends itself to integrated instruction, many elementary teachers are also reluctant to alter the traditional subject-based curriculum, according to James Beane of National-Louis University. "In a lot of elementary classrooms, it's still broken up by the disciplines, with reading at 8:30, math at 9:30, and so on," he says.

Avoiding the Trivial

This reluctance is not entirely unreasonable; integrated teaching is hard, and there are dangers. One pitfall is that the thrill of creating thematic units and finding connections among the disciplines can distract teachers from the task of distinguishing important concepts from trivial ones and designing

Resources for Exploring Curriculum Integration

The following resources provide further discussion of curriculum integration theory, describe the different integration models, and offer practical ideas for implementation at various grade levels.

James A. Beane. *A Middle School Curriculum: From Rhetoric to Reality.* Columbus, OH: National Middle School Association, 1993. Reviews and critiques numerous curriculum models and concludes that general education based on young people's "personal and social concerns" is the most appropriate for middle school.

Educational Leadership 49, no. 2 (October 1994). Special issue on curriculum integration includes articles by Beane, Fogarty, Jacobs, Vars, and other experts. Of particular interest to secondary school educators is an article by Pamela R. Aschbacher about Humanitas, a highly successful interdisciplinary program in 29 Los Angeles public high schools.

Robin Fogarty. *The Mindful School: How to Integrate the Curricula.* Palatine, IL: IRI/Skylight Publishing, 1991. Describes 10 curriculum models at various degrees of integration, from fragmented to networked, and provides worksheets and other practical aids for implementing each one.

Heidi Hayes Jacobs, editor. *Interdisciplinary Curriculum: Design and Implementation.* Alexandria, VA: Association for Supervision and Curriculum Development, 1989. Describes the continuum of options from a discipline-based to a fully integrated program; includes David Perkins's suggestions for "selecting fertile themes for integrated learning."

Susan Kovalik. *ITI: The Model. Integrated Thematic Instruction* (3rd edition). Kent, WA: Books for Educators, 1994. Describes a "brain compatible" integrated curriculum, with sample materials.

Tarry Lindquist. *Seeing the Whole Through Social Studies.* Portsmouth, NH: Heinemann Publishers, 1995. A resource for K-8 teachers, with examples of strategies for collecting and organizing information for the integrated classroom.

John H. Lounsbury, editor. *Connecting the Curriculum Through Interdisciplinary Instruction.* Columbus, OH: National Middle School Association, 1992. Includes chapters on planning and implementation, with descriptions of actual programs and guidelines for team teaching.

Richard E. Maurer. *Designing Interdisciplinary Curriculum in Middle, Junior High, and High Schools.* Needham Heights, MA: Allyn & Bacon, 1994. Advice on unit design and team organization, with 23 sample middle grades units, 19 high school units, and lists of contact names and phone numbers.

Chris Stevenson and Judy F. Carr, editors. *Integrated Studies in the Middle Grades: Dancing Through Walls.* New York: Teachers College Press, 1993. Twenty-six Vermont middle grades teachers describe their efforts to break down traditional subject "walls" and design integrated curricula based on students' interests and developmental needs.

Sean A. Walmsley. *Children Exploring Their World: Theme Teaching in Elementary School.* Portsmouth, NH: Heinemann Publishers, 1994. Whys and hows of interdisciplinary instruction in the elementary grades, with sample units for each grade from K through 6.

units of study based on essential questions, not a smorgasbord of interesting activities.

"In the planning of interdisciplinary units," says Kathleen Roth of Michigan State University, "thoughtful teachers often and understandably become caught up in the themes—incredibly enthusiastic about them. The theme becomes the lens for seeing and connecting more and more of the world."

Roth found, in a study of integrated instruction in the elementary grades including her own teaching in a fifth-grade classroom, that the content of thematic units tended not to focus on powerful organizing concepts from the disciplines. "While the American Association for the Advancement of Science is recommending interdisciplinary themes such as systems, models, patterns of change, and interactions," she says, "we had taught or observed theme units focused around such things as a color (black), teddy bears, bubbles, and apples." Roth urges caution in substituting a thematic organization of curricula for a discipline-based one.

Experienced teachers agree that successful integrated teaching takes time and a lot of work, and they recommend starting off slowly. Tarry Lindquist, a fifth-grade teacher in Mercer Island, Washington, is in her fifteenth year of teaching an integrated curriculum. "It takes a minimum of three years to become good at it," she says. "The first year you're just becoming aware. The second year you actually start doing it. The third year you begin to build up some credibility and confidence. In the fourth year you can really start throwing out things that don't work."

Lindquist began by eliminating the language arts period in her class and incorporating reading and writing into all the other subjects. Gradually the other subjects on her daily plan disappeared as well—all except math. "I still have to teach computation as a separate skill," she says. But she organizes the rest of her teaching in thematic units based on concepts from the social sciences, natural sciences, and health. "For this to work," she says, "it's essential to leave teachers at a grade level long enough to know the curriculum well, so they know what to keep and what to toss. What are the essential things kids need to know?"

Thematic units can also give elementary teachers opportunities to work in teams. First-grade teachers Debby Fabian, Mary Ellen Gaddy, and Margaret Wertime at North Warren Elementary in Brant Lake, New York, have gradually turned a multi-class field trip to a local fish hatchery into an extended integrated unit incorporating science, math, writing, history, and art. And other elementary teachers are adopting whole-language approaches (using children's literature instead of basal readers and textbooks) not just to develop reading and writing skills, but also to teach science, math, social studies, and other "subjects."

Making It Work

One high school that seems to be beating the odds with a curriculum devoted exclusively to interdisciplinary study is International High at LaGuardia Community College in Queens, New York. The school has about 450 students from 56 countries, speaking 40 languages. All students admitted to the school have been in the U.S. less than four years and have English-language proficiency scores below the 20th percentile.

The school is divided into six instructional teams, each of which has created

two interdisciplinary programs. Students take 12 nonsequential cycles for graduation, centered on themes like "American Dream/American Reality" and "World of Money." The school's graduation rate is over 95 percent, and more than 90 percent of the graduates go to college; both figures are well above average for New York City public high schools. Virtually all students pass the required New York State Regents Competency Tests in all subjects.

Acting principal Ruthellyn Weiner says International High's program built on itself after starting with one interdisciplinary course. "Teachers noticed that kids coming out of the 'Beginnings' course were learning in a different way and they wanted to get involved," she says. Other interdisciplinary courses were gradually added, and the school is now in its third year with no traditional subjects at all. Students participate in the development of courses throughout the process.

While the school's special population may make its situation unique, one of the arguments Weiner makes for working outside the one teacher-one subject paradigm could apply to any school that uses cooperative learning: "If we ask students to work in collaborative groups, shouldn't we ask the same of teachers?"

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International High School, LaGuardia Community College, 31-10 Thomson Ave., Long Island City, NY 11101; 718-482-5456. Free information packet available.

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Assistant editor Michael Sadowski teaches English and drama at Dennis-Yarmouth Regional High School in Massachusetts.

VALUES IN THE CURRICULUM

Knowing No Boundaries: A Conversation with James Beane

Only when the curriculum engages students' hearts and minds, says this advocate of integrated studies, does learning have meaning for them

Perhaps the best-known American advocate of curriculum integration, James Beane separates himself from many of the others by calling for a complete dissolution of subject-area boundaries for almost all pre-college instruction. A professor of education at National-Louis University in Evanston, Illinois, Beane helps schools around the U.S. as well as in Canada and Australia implement integrated programs. He is the author or editor of nine books on the subject, including Affect in the Curriculum: Toward Democracy, Dignity, and Diversity *(Teachers College Press, 1990) and* A Middle School Curriculum: From Rhetoric to Reality *(National Middle School Association, 1993). He was interviewed for the* Harvard Education Letter *by Michael Sadowski.*

HEL: How did you first become committed to the idea of curriculum integration?

Beane: I started as a junior and senior high school teacher in the mid-1960s, and I saw that there was something fundamentally wrong with schools. Like a lot of people, I was concerned about the injustices I saw in things like school structures, grouping, and grading. I did a lot of reading about the progressive education movement and core curriculum, and ended up doing my doctoral dissertation on it. I also did a lot of reading about values, moral education, and self-esteem issues with kids.

Unlike people who talked about doing "activities" or changing the structure of schools, I wanted to see how the curriculum could be more nurturing. I saw what was happening to kids in school. School seemed to be a place where their self-esteem was constantly at risk. They had no say in what went on in their lives. Now, when we plan with young people, we're dispersing ownership of knowledge and kids have a say about what counts.

HEL: So for you there's a connection between integrated curriculum and values education?

Beane: Definitely. The idea of real curriculum integration is to deal with the issues and concerns of youth and society, to build a curriculum around the issues society seems to be facing. Values, morals, and ethics come into that naturally.

I think some fundamentalist conservatives may actually understand curriculum integration more clearly than a lot of educators do, because they see the values built into it. When you engage kids in critical thinking and investigation, they start forming their own opinions and seeing diverse points of view. Many conservatives see this as a threat to their structured, top-down way of viewing the world, and they oppose it for those reasons. An ultraconservative group in Wisconsin called PRESS has curriculum integration on its list of "school reform red flags" that they want to get rid of.

People also complain that integrated curriculum gets us away from teaching "the basics"—which is a code word for a teacher-dominated, apparently apo-

litical system. I say *apparently* because there's a view out there that subject-centered curriculum is apolitical—but it's very political. It's all about deciding what counts for knowledge—keeping certain things in and certain things out.

HEL: How do you incorporate "the basics," those concrete skills students need, such as math and reading, into an integrated program?

Beane: When we plan units, we try to be as aware as possible of the kinds of knowledge we're expected to incorporate. We sometimes take things a little out of sequence, but kids do get the skills. History comes in with kids trying to find out why things are the way they are, but not chronologically.

The disciplines of knowledge are a major resource for us. They're necessary for responding to the questions and concerns in the curriculum. But we neither begin nor end with them. They are integrated into the problems at hand. We teach the skills as we go along. When people ask me, "What about the integrity of the disciplines?" I often ask, "What integrity do they have apart from this?"

For example, in one unit called "Living in the Future," a student asked, "What will happen with gang violence?" We went to the library and gathered statistics on violence over time, did line graphs, and did some work on formulas that would help us extrapolate the statistics. We do things with algebra and geometry, too.

HEL: How do you work with students to generate curriculum themes?

Beane: We begin by asking kids two kinds of questions. First, "What are questions or concerns you have about yourself?" These might be things like "Do other people think I am the way I think I am?" or "What will I look like when I'm older?"

Next, we ask what questions or concerns they have about the world. Kids will say things like "Will the environment survive?" or "Will world hunger ever end?" One of my favorite questions is "Will there ever be a president who isn't a white man?"

Then we ask kids to look for connections between the questions about themselves and the world questions. For example, self questions like "What will I look like when I get older?" and "Will I get a good job?" can go with world questions like "Will there be more or less poverty in the future?" or "Will violence continue?" "Will I be healthy in the future?" can combine with "Will they find a cure for cancer or AIDS?" for a unit on health. The themes come out of the clustering of questions. Then we've got a list of themes for the year and the questions within them.

Some kids have fabulous ideas for activities, too. One student suggested answering the question "What will I look like when I get older?" by bringing in a police composite sketch artist. All I'd thought of was asking them to bring in photographs of older relatives.

Some fundamentalists may understand curriculum integration more clearly than a lot of educators do.

You can also do integrated curriculum with teacher-generated themes; there are a lot of good examples out there. But I argue that if we want to get kids to integrate, the ideas have to be close to their hearts and minds.

HEL: You make a point of distinguishing between multidisciplinary and integrated curricula. Why?

Beane: When you go beyond the separate-subject curriculum, you end up in one of two places. Do you or don't you intend to retain the identity of the separate subjects? If you retain the disciplines, it's multidisciplinary. You establish a theme and then decide what each subject can contribute. Or, you dissolve the boundaries and achieve integration—you investigate big ideas and the activities integrate organically.

Heidi Jacobs says there are five degrees of integration and Robin Fogarty says ten, but these are really variations on two alternatives. It's about whether the word *discipline* is the root or not. It's not about correlating subject areas, but, as John Dewey said, "It's about one earth and the one life lived upon it."

HEL: So you think an integrated curriculum, as you define it, is better than interdisciplinary instruction?

Beane: I stand against the separate-subject curriculum for reasons having to do with learning theory as well as cultural politics. I think it's ineffective for learning and alienating for all but a few—only "high culture" interests are represented in it.

Frankly, I don't see multidisciplinary curriculum as much of a step beyond that. The purpose still begins and ends with the disciplines of knowledge. Integration is a different view of curriculum. L. Thomas Hopkins called it the "is" curriculum as opposed to the "was" curriculum.

HEL: What are the pitfalls of curriculum integration? What are some of the mistakes you've seen schools make?

Beane: They are the pitfalls of any teaching situation. My biggest fear is that people are going to do this sloppily or in a very low-level way and that it will be less than it can be. Then it will be vulnerable to scrutiny, or even ridicule. I have worked with teachers who plan with students but never press them. They follow a problem-centered approach but never work with kids to help them learn skills. But just as there's some bad teaching in this area, there's also bad separate-subject teaching.

There are obstacles. In the past there was a lack of resources. Textbooks, for example, are centered on separate-subject work. But with the new technology, there are much richer resources available for this kind of curriculum—CD-ROM, the Internet, videos.

HEL: Who objects to this kind of curriculum?

Beane: There is resistance from some parents and some kids—especially kids who have done extremely well under the old system. Why would they want it to change? But the greatest source of resistance by far is from within the system itself. When you move out of your own separate subjects, you become more visible and also more vulnerable. A lot of teachers are afraid to do that. Or they say that it's just too much work. This kind of curriculum *is* a *lot* of work.

HEL: What do you tell people who say, "If it ain't broke, don't fix it"?

Beane: I see curriculum integration as a design that more clearly works toward the goals we say we have for our students—that kids would develop skills and attitudes for living in a democratic society; that they'd become more

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capable at solving problems; that they'd learn how to work with others. That's the purpose of curriculum integration, and I honestly don't see how the separate-subject curriculum works toward those goals.

HEL: How do you know that an integrated curriculum works?

Beane: Sometimes I refuse to answer that question until the people who use the separate-subject paradigm answer it for their approach. Does anybody ask math teachers why they do statistics in November or graphing in March? Do you know why biology, chemistry, and physics are always taught in that sequence? Because they're in alphabetical order. Nobody seems to challenge that.

People are constantly asking me, "Are kids going to get all the skills they need?" Or they'll ask, "Will kids do worse on tests?" Unfortunately, I think some people ask this because they want to keep the curriculum in line with the dominant culture, so that they can ensure their own kids' success. Sometimes I wonder if the fear is not really whether their kids will do worse, but whether too many other kids will do well.

SCHOOLS AND THE LAW

Random Drug Testing of Athletes Poses Legal and Psychological Questions

The Supreme Court majority finds suspicionless testing can be reasonable, but some educators question the message it sends students

BY LAUREN OPERT SANDLER

The U.S. Supreme Court opened the door to suspicionless drug testing of athletes in its June 26 ruling in *Vernonia School District v. Acton*, but experts warn that obstacles and potential dangers face school officials who are thinking about following in the Oregon district's footsteps.

The decision is part of a pronounced trend in recent Supreme Court rulings: the Court is increasingly disinclined to view students as adults and more willing to give school administrators leeway in enforcing discipline, especially in matters related to students' safety. "The pendulum has swung in favor of school officials," says Perry Zirkel, a professor of education and law at Lehigh University.

The Court found that, because the students were children who had been committed to the custody of the school and because there was evidence that drug use had caused injuries and disruptions, the testing policy was reasonable. The ruling relied heavily on the arguments that participation in school athletics was voluntary and that athletes give up many of their otherwise legitimate expectations of privacy because there is "an element of communal undress inherent in athletic participation." The Court found Vernonia's method of collecting urine samples from students a reasonable search under the Fourth Amendment in part because the conditions were similar to those of urinating in a public bathroom.

"Under the District's policy," wrote Justice Antonin Scalia in the majority opinion, "male students produce samples at a urinal along a wall. They remain fully clothed and are only observed from behind, if at all. Female students produce samples in an enclosed stall, with a female monitor standing outside listening only for sounds of tampering."

***Any school planning to institute random testing of athletes should stay scrupulously within the bounds of* Vernonia.**

The Court went out of its way to emphasize that the ruling does not authorize random testing of students in general. "We caution against the assumption that suspicionless drug testing will readily pass constitutional muster in other contexts," wrote Scalia.

Testing the Waters

August Steinhilber, deputy counsel of the National School Boards Association, advises that any school planning to institute random drug testing should stay scrupulously within the bounds established in *Vernonia*. The credentials of the laboratory that will analyze the urine samples must be certified before testing begins, he says. Samples must be meticulously tracked from the moment they are collected, and precautions should be taken to guarantee their legitimacy. They must be examined immediately for water dilution and to confirm that they are at body temperature. Each specimen must be divided in two so that the test protocol can be double-blind. Schools that depart from strict adherence to these and other conditions can expect their plans to result in lawsuits, warns Steve Yurek, an attorney with the National Association of Secondary School Principals.

Vernonia tested only for marijuana, cocaine, and amphetamines, leading some observers to question the omission of steroids from the list. Steinhilber points out that performance-enhancing drugs were not an issue in the case because, unlike the three targeted drugs, there was no evidence of their presence in the community.

"Could another community find that its problems are different? Yes," he says. "A reasonable search and seizure could be done for other drugs. All you have to do is document the need."

The importance of documented evidence of widespread drug abuse by ath-

letes in justifying a testing program is emphasized by Tim Sheeran, a partner in the Ohio firm of Squire, Sanders & Dempsey, which counsels many school districts. "You need to do what the Vernonia board did," he says. "Make factual findings that there is a drug problem and that athletes are involved."

The Costs of Testing

The cost of drug testing—typically $50 to $60 per test—is likely to be a major obstacle for school districts considering such a policy. There is also the cost of potential litigation.

Another factor is the effect of random testing itself on students. Justice Scalia stressed in his opinion the supposedly nonpunitive purpose of Vernonia's testing program. "The results of the tests are disclosed only to a limited class of school personnel who have a need to know," he wrote, "and they are not turned over to law-enforcement authorities or used for any internal disciplinary function...."

Justice Sandra Day O'Connor, in her dissenting opinion, questioned Scalia's reasoning. "Searches for conditions plainly reflecting serious wrongdoing can never be made wholly nonaccusatory from the student's perspective, the motives for the program notwithstanding," she wrote, "and for the same reason, the substantial consequences that can flow from a positive test, such as suspension from sports, are invariably—and quite reasonably—understood as punishment."

The psychological consequences of drug tests can be far-reaching, argues Margaret Jennings, president of the American School Counselors Association. "A positive test for a student who is not a regular drug user would have an impact on general self-esteem, especially within the peer group," she says. "It would label the student as a drug user. Kids are very susceptible to picking up labels about themselves, sometimes for life. The outside world labels them; they label themselves; and that pulls them into the drug culture.

"It would shake the student's confidence in the school," Jennings adds, "and undermine his trust in school staff, especially the coach. For a lot of students this is their primary relationship—their first relationship with a significant adult other than their parents."

Justice O'Connor, in her dissent, also raised the issue of trust in scolding Scalia and the majority of the Court: "Intrusive, blanket searches of schoolchildren, most of whom are innocent, for evidence of serious wrongdoing are not part of any traditional school function of which I am aware. Indeed, many schools, like many parents, prefer to trust their children unless given reason to do otherwise."

Some educators welcomed the Court's decision because it gives schools a potentially powerful tool to prevent drug abuse. They argue that mandatory testing has been effective in the military and that it is legitimate for schools to give students help in resisting social pressure to take drugs.

Others warn that testing can backfire if the results are used punitively. Judith Young, executive director of the National Association for Sport and Physical Education, argues that athletes who test positive should not be ostracized. "Let them be members of the team without participating," she says. "If you make them ineligible for sports, will they fall deeper into drugs? Drop out of school? Keep them involved and connected to their sport while we address the drug issues."

While few school districts have moved to implement drug testing plans for athletes in the weeks following the Court's decision, attorney Yurek thinks the impact of *Vernonia* may grow. "Pressure for drug testing will most likely come from politicians," he predicts. "It's coming up to an election year. It will be an issue."

For Further Information

T. Sheeran. Squire, Sanders & Dempsey, 4900 Society Center, 127 Public Square, Cleveland, OH 44114-1304; 216-479-8605.

A. Steinhilber. National School Boards Association, 1680 Dune St., Alexandria, VA 22314; 703-838-6722.

M. Walsh and L. Miller. "Court Upholds Drug Tests for Student Athletes." *Education Week* 14, no. 40 (July 12, 1995): 1, 23-25.

Lauren Opert Sandler is a student at Barnard College in New York City.

LETTER TO THE EDITOR

Good Teachers Avoid Textbooks? Humbug!

TO THE EDITOR:

There is no question that certain older textbooks were dreadful and some of the new texts are boring and inadequate. That, however, does not justify the misleading tone of "The Textbook Business: Education's Big Dirty Secret" (*HEL*, July/August 1995). What secret? Texts have been discussed prominently for years, and the best of the new textbooks have benefited. The new math texts reflect the NCTM standards, and the new Houghton Mifflin social studies series reflects new understandings of how people learn and the importance of students being active participants in the learning process.

With all respect to Harold Howe II, who is quoted saying that "the best teachers are not using textbooks very much anymore" and that "good teachers help kids to discover the sources of learning," what on earth are "the sources of learning"? This phrase reminds one of Ponce de Leon's search for the fountain. It implies that there are certain acceptable sources of learning that are being hidden from the students by the combined actions of a corrupt textbook cabal and lazy teachers. What a humbug!

While we encourage use of original documents whenever possible in social studies, it is sometimes impractical to do so and occasionally difficult for teachers to gather enough for all students. While emerging technologies such as online research offer much promise, the cost of all students having constant access is as yet prohibitive. Textbooks fill in the gap for us and many other demanding schools.

DONALD H. MURPHY
PRINCIPAL, LONGMEADOW HIGH SCHOOL
LONGMEADOW, MASSACHUSETTS

Letters to the Editor

We invite readers to comment on the articles in this issue of the *Harvard Education Letter* and on other matters of importance to educators. Address letters to the Editor, *HEL*, 349 Gutman Library, 6 Appian Way, Cambridge, MA 02138. You may also fax letters to 617-496-3584 or send electronic mail via Internet to EdLetter @hugse1.harvard.edu.

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SITE-BASED MANAGEMENT

Shared Decision-Making by Itself Doesn't Make for Better Decisions

A study of high schools finds that democracy in governance helps teachers "buy in" to reform, but real change depends on the principal's vision and leadership

BY EDWARD MILLER

Who should make the most important decisions about how a school is run? Traditionally, it has been the principal, who gets lots of advice from district administrators and school boards. In the last decade, however, reformers have called for a much bigger role for teachers in making decisions at the school level, especially in matters of curriculum, instruction, and assessment—the core issues that are most directly related to students' learning. The Carnegie Forum on Education and the Economy and the Holmes Group, among others, in their reports on the future of teaching as a profession, advocated decentralized control of public schools and the empowerment of teachers.

INSIDE

Changing Kids' Attitudes Towards Disabled Peers

How to Help Students Write Application Essays

Efforts to promote site-based management of public schools often take for granted the superiority of shared decision-making, where teachers and administrators jointly take responsibility for making school policy. But recent research suggests that some common assumptions underlying the arguments for shared decision-making are overoptimistic. These studies indicate that, in high schools at least, simply moving the locus of decision-making doesn't necessarily change the quality of those decisions. (Team structures may work better in elementary schools, which are less departmentalized than high schools.) And they reinforce the conclusion of other researchers that, when it comes to making significant changes in practice, it is the principal's leadership and vision that most often provide the essential push.

The Assumptions

Common assumptions about the effects of shared decision-making include these: that it will produce better decisions on curricular and pedagogical matters, because teachers are less interested in purely bureaucratic controls and know students better than administrators do; that it will promote reform and innovation by unleashing teachers' creativity, because it fills a need for teachers to have some control over their work lives; and that, because of these and other advantages, it will lead to improved student achievement.

In one school, teachers were invited to help select a new principal, but the person hired was not even on their list.

But a five-year study of 12 varied public high schools has raised questions about whether shared decision-making really works the way its advocates say it should. In six of the schools, authority was shared by teachers and administrators; in the other six, principals ruled in the old-fashioned way. The researchers, Carol Weiss of Harvard, Joseph Cambone of Wheelock College, and Alexander Wyeth, now dean of students at Souhegan High School in Amherst, New Hampshire, discovered that, contrary to expectations, the inclusion of teachers in making decisions did not

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precipitate important reforms.

The schools where authority was shared devoted only slightly more energy to decisions on teaching and curriculum than other schools did. In both kinds of schools, significant change occurred mainly when the principal took the lead in promoting it—often over the objections of faculty. Indeed, one of the main differences between the two groups of schools was that those where principals shared authority with teachers spent more time making decisions.

The theory that shared decision-making leads to improved student achievement remains unproved. Anita Summers and Amy Johnson of the University of Pennsylvania reviewed the research on this question and found 70 studies that attempted to evaluate efforts at shared decision-making, but only four evaluations considered quantitative data on student achievement, and none of these produced statistically significant evidence of a link between teachers' empowerment and students' learning. It may be premature, however, to expect changes in test scores at this relatively early stage in the course of this reform experiment.

Advocates of shared decision-making sometimes argue that the practice of democracy in schools is itself a worthy goal, regardless of its usefulness in promoting other reforms. The evidence supports this democracy argument: teachers usually say they want and deserve to have a voice in making decisions that will affect them. But researchers conclude that the effective practice of shared power depends on a web of other factors, including the genuineness of teachers' authority, their access to knowledge and resources, and the capacity of people at all levels of the school to transform their old patterns of relating to one another.

Taking Teachers Seriously

Carol Weiss argues that one of the reasons why shared decision-making failed to produce significant changes in the schools she studied was the "pervasive skepticism" of teachers that their new authority was real—that they would in the end be taken seriously by the existing hierarchy. In some cases, this skepticism was well founded.

"One group was given 'permission' to choose an alcoholism and drug counselor for their school," says Weiss. "But after they had interviewed candidates for the job and were about to make their selection, the central office hired someone they had not even interviewed. The 'permission' had been capriciously withdrawn." In another school, teachers were invited to help select a new principal, but the person who was ultimately hired was not even on their list.

Even as part of a decision-making body, teachers did not want to tell other teachers what to do in their classrooms.

Even in the schools where such blatant incidents did not occur, teachers' wariness was rooted in a long history of failed reform efforts. "Most teachers have been around a long time," one teacher said. "You have been on committee after committee and you talk about change and talk about change, and change never occurs."

One effect of this skepticism was that reform-minded teachers, more than principals, felt less able to exert leadership and push for changes. Active dissent from the old ways of doing things required "dangerously heroic behavior," says Weiss. "Foot-dragging was acceptable, especially in the company of others, but striking out in new directions was risky. When most teachers favored a 'go slow' course, it was the rare teacher who was willing to challenge the prevailing norms."

In some schools, principals who initially supported the idea of shared decision-making became so frustrated with its slow pace that they eventually sidestepped the group process and took unilateral action. This tendency of principals to abandon shared decision-making in times of stress naturally confirmed teachers' skepticism about the reality of their supposed new authority.

Principals, in general, were less constrained by what Weiss calls "the institutional press toward conformity." Why? Several of them said they were motivated by their belief in the need to shake up a system that was not meeting the needs of kids. Teachers, on the other hand, observed that principals were often motivated by self-interest—that pushing for change was the best way for principals to advance their careers.

"Most of the principals were not making their careers within one school," says Weiss. "The superintendent or school board had appointed them to their present job, in most cases partly because of their allegiance to reform. Future career advancement would come from the district, or from other districts. In fact, during the three years of our fieldwork, four of the six principals in schools with shared decision-making left for other positions."

Confronting Conflict

The rhetoric of shared decision-making suggests that empowering teachers will lead to changes in classroom practice, but Weiss and her colleagues found that, as other researchers have noted, "teachers are likely to resist decisions that require them to make drastic changes in the way they teach." Thus, teachers tended to propose minor changes in curriculum or pedagogy, such as aligning history and literature courses. Often they focused on issues of order, such as ways of getting students to class on time.

Teachers wanted to avoid conflict within the school, especially with their peers. "Many teachers resisted accepting responsibilities as peer supervisors for other teachers," says Weiss. "They did not want other teachers to tell them what they should do in their classrooms, and, even as part of a decision-making body, they did not want to tell other teachers what to do in theirs. Further, they did not like getting into debates in faculty meetings or in shared decision-making bodies that provoked unpleasant disputes."

Conflict, however, was one of the main products of shared decision-making, particularly in schools where principals were trying to make big changes. Administrators sometimes welcomed

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the resulting confrontations. "There's always dissension out there," said one principal. "It's underneath and people just keep it quiet.... You can't do anything about it until you know what it is."

In this sense, making decisions collectively did produce some advantages, says Weiss. By defusing opposition, it made it more likely that teachers would actually carry out changes that were eventually agreed on. "By the time the change was implemented," she and Cambone wrote in a recent analysis, "even though it might have been modified and watered down, teachers in shared decision-making schools tended to accept it."

By contrast, activist principals in schools without shared decision-making were able to push through major changes—block scheduling, for instance, or the introduction of portfolio assessment—without having to negotiate with skeptical teachers. But Weiss and Cambone speculate that, because these changes were implemented without the open confrontations sparked by shared authority and thus took effect amid serious "grumbling and bitterness" among teachers, they are unlikely to last long.

The Responsive Principal

Shared decision-making itself may be a hard reform to sustain over the long term unless it is buttressed with other supports. Although many teachers were initially attracted to the idea, believing that it would bring them some measure of control over their workplaces, "teachers' allegiance to shared decision-making seemed to cool over time," Weiss and Cambone observed. As their study progressed, teachers became more convinced that, though they wanted to be consulted, "the principal should make decisions."

Participation in decision-making teams took large amounts of time and energy and inevitably diverted teachers' attention from their classrooms. This sometimes led to exhaustion. "Furthermore," Weiss and Cambone wrote, "the fruits of their participation were not very visible. Many of them did not feel as though they had been very influential or effective. They believed that an elephantine amount of talk sometimes brought forth a small 'mouse' of results.... At one point or another, large numbers of teachers yearned for the days when a responsive principal listened to their ideas and then made the decisions himself or herself."

The researchers argue that making decisions collectively in the real world of schools is more problematic than its advocates have assumed because it requires a difficult shift in the ways teachers think. Teachers in the study saw themselves as conservators of traditional educational values and time-tested, proven methods, resisting the numbing effects of bureaucracy and the faddish innovations of ambitious administrators and zealous young reformers.

Indeed, age and seniority emerged as critical issues that divided faculties at some schools and affected the potential for shared decision-making to promote change. Young, inexperienced teachers sometimes took the lead in proposing changes. But "there are ways to behave in the culture of most schools," the researchers note, "and new teachers can't just take power. They must lead people through this thing called 'buy-in,' a phrase heard around the country."

The involvement of teachers in making decisions acted more as a brake than as an engine of reform.

One teacher from Colorado described why he felt that the young teachers who tried to promote an alternative curriculum in his school had failed: "The people who tried to assume leadership around these issues were never given that right by the others. And I don't mean formally, necessarily. I mean informally. They can't lead anybody because they don't have folks bought in with what they're doing."

That 'Ed School' Stuff

Weiss and her colleagues argue that teachers, taken as a group, feel vulnerable and conflicted and have a fragile self-image. "In their classes with students, they are confident," they write. "But once they step out of their classes and into the arena of administrators, policy-makers, and the community, they are often hesitant and intimidated.... They often have little time to look up and see what is going on outside their close-knit work world; and when they do look up to survey what is going on in the school at large, their vision has trouble adjusting to the wider view."

One reason why teachers have trouble focusing on the "wider view," says Weiss, is that they distrust many ideas that come from outside their own classroom experience. Teachers in her study most often turned to the opinions of fellow teachers when they wanted information. Rarely did they talk about ideas from professional development work, meetings, conferences, books, or the news media. When they mentioned research or journal articles, it was usually as something that the principal had tried to get them to read.

"[The principal] puts these articles in our boxes, about learning styles or whatever else is hot these days," explained one teacher. "Administrators are more into the Ed School stuff than teachers. We know; we do it every day."

Principals were different in this respect from teachers, the study clearly showed. Having offices, telephones, and more opportunities to attend professional meetings, they tended to read more and talk to more people, and thus to draw on a wider variety of sources. They also had a platform from which to speak to members of the staff. It is not surprising, then, that principals, not teachers, tended to be the instigators of school change, and that the involvement of teachers in making decisions acted more as a brake than as an engine of reform. In notable cases where teachers *were* the sources of new ideas and advocates of change, it was only when the principal picked up the idea that movement began.

These researchers conclude that, in spite of the headaches brought on by shared decision-making, it still holds promise, particularly in the area of "buy-in." Teachers who have argued and negotiated a significant change in school policy or practice will be more likely to carry out that change with re-

COMING SOON IN *HEL*

Whole Language Versus Phonics

Helping Runaway and Homeless Youth

Teaching Students to Avoid Plagiarism

solve. But they warn that this advantage comes with a price.

"Sustained teacher planning and decision-making over long periods of time in ordinary schools everywhere will require a system of supports well beyond any available in the schools we studied," they write. Based on their interviews and observations, they call for teachers to be paid for their extra planning and meeting time, and for staff development work that helps prepare teachers for the conflicts and stresses they will face. And they urge administrators to hold to their commitment to shared decision-making over the long haul, even when budget pressures are severe.

Reform-oriented administrators ought to think about ways to increase the stake that teachers feel in the outcome of school change, says Carol Weiss. Reform ideas need to be clearly attached to enduring values—to a common vision—that motivates teachers as well as principals. And teachers need access to ideas and information that will enlarge their view of teaching and learning, while honoring their own perspective and their often quite justified skepticism.

"If shared decision-making is to engage teachers in basic change," says Weiss, "it has to be seen as a permanent part of the school's structure and be supported with time, money, training, and symbolic endorsement from the district level on down. Unless teachers become convinced that it is permanent and authentic and that they really hold power, they are unlikely to take collective steps toward reform."

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GETTING INTO COLLEGE

The Application Essay: Texts, Subtexts, and Teacher Intervention

A writing teacher argues that schools could do more to prepare students for the scariest part of applying to college

BY SANFORD KREISBERG

Why is the college application essay so hard for students to write? It's not just because nervous seniors usually leave it for last among the hurdles of the application steeplechase. Nor is it only the casual intrusiveness of the typical essay question: "Describe a risk you have taken." Part of the discomfort, no doubt, comes paradoxically from the advice that counselors and the applications themselves have often given students about to write their essays: "Relax as much as possible when you work on your essay" (Stanford University) or "There are no right or wrong answers—we simply want you to be yourself" (Colby College).

Students usually know better. The personal essay is their last chance to make an impression on the faceless admissions committee, and perhaps to tip the scales over to acceptance. The "right answer"—an eloquent essay—can be a powerful door-opener. Moreover, it is the one part of the application over which they have complete control. No wonder they leave it for last.

The subtext of the essay question, especially at selective private colleges and universities, is that it has become a marker to identify certain ineffable values. M.I.T., for example, encourages essay writers to be "entertaining"—a challenge, no doubt, for many applicants who are not native English speakers. Indeed, many of the examples published in the book *Essays That Worked* are voiced in either a Calvin Trillinesque urban whimsy or its rural cousin, Sandburgean high-mindedness—leaving the striving suburbs underrepresented.

Who Gets Helped?

The debunking of the old myth that the SAT is not "teachable" has given rise to a huge SAT-cram-school industry, and college counselors now admit that preparing for entrance exams is essential for most students. But not enough attention is paid to helping students with their application essays, where the guidance of an experienced coach can potentially have an even greater effect on the outcome.

Help can come from many sources: teachers, college counselors, parents, family friends, and even the Internet. Students in private schools and certain well-endowed public schools have long enjoyed this kind of personal coaching on their applications. Yet even in these schools help can be random, varying by luck, student initiative, and parental intervention. Many teachers feel unsure about the propriety of helping students with application essays, and few schools have set up systems for doing so. Most public high school students are completely on their own.

College officials agree that help is allowed, but how much? Admissions

officers suggest having someone look over the essay for form and perhaps sense. "Have someone else whose judgment you value take a look at your essay," says Princeton Dean of Admissions Fred Hargadon, "in order to point out typos, grammatical errors, or even, ahem, incomprehensibility." Hargadon cautions, however, that the essay should be the student's in "style, flavor, and substance"—both for ethical and practical reasons. Essays that are professionally terrific, or show a level of literacy that obviously mismatches other facts (recommendations, test scores, grades) in the application, will glow in the dark with the hard neon flame of fraudulence.

Sarah Myers McGinty, writing in a recent issue of *English Journal*, proposes a much more concerted level of intervention—a semester-long course designed to help students over the cognitive hurdle of self-reflection. Her plan includes assigning personal narratives that are revised over a period of months with advice from a peer writing group, which helps the writers "build their own meaning from the story." Alternatively, McGinty suggests assigning essay topics with "built-in reflectiveness," such as writing about "a choice you've regretted" or "something you believed once but don't believe now."

The nub of McGinty's plan is the shrewd observation that when it comes to writing the essay, maturity is a proxy for virtue, and that the way to crank an essay to the next level of authority, power, and "winningness" is to increase the maturity of the insights and feelings with which it deals. But is this kind of intervention fair?

No, it's not fair, in the sense that Student A at Richly Endowed High School will get an edge on Student B at Middle Range High School. But such help—already given to the most privileged—is less unfair as it becomes available to more students. Further, from an educator's point of view, I would argue that a course, or some type of clinic focused on the application essay, is both good pedagogy and good politics. After all, there is no real difference between this kind of coaching and what is otherwise called education: leading the student out by guidance, questioning, and discipline.

Three Rules for Writing

There are several ways teachers and counselors can improve their students' chances of producing an original and effective application essay.

1. *Look for good models.* The easiest, most effective, and least expensive way to help is to expose students to real essays written by other students, of which several books have been published (see below). The most effective learning is mimetic, and it does not even require a teacher. Students will quickly notice the varieties of tone and subject available to them, the kinds of ideas that are powerful, and the range of sub-genres (essays about travel, relationships, death, overcoming obstacles, and families; essays with cartoons; offbeat essays; and that postmodern favorite, essays about writing the admissions essay).

Individual schools might compile their own collections of essays written by past seniors, with comments from teachers, counselors, and peers. Such a collection might include less strong examples and early drafts—the award-winning essay, like all great literature, often proves to be paralyzing rather than enabling to a struggling writer. Teachers could use these as a starting point for class discussions on writing and revising.

The application essay has become a marker to identify certain ineffable values.

Such discussions would ideally lead students to discover for themselves the elements of successful essays—that the best are rich in detail, with quotations, facts, and stories, showing things rather than telling them; that the great essays do not paste on a moral, but embody morals that are small, unexpected, and personal to the author, and which grow out of the evidence in the essay; that an effective essay shows the personality of the individual writer and does not default to generalizations about the world or social issues.

2. *Avoid common essay pitfalls.* Students should avoid writing about "big" topics—war in the Balkans, O.J., the media, ecology, civil rights, national politics, and general human nature, because it is unlikely that they will be able to say anything personal or unique about them. A common flaw in many application essays is the shopworn moral: "My Outward Bound trip taught me the importance of preserving the environment," or "Grandma's death taught me to stop and smell the roses."

Death is a perennial favorite among essay topics, but even here some additional reflection can help the writer turn a routine idea into an unexpected one. A less successful idea for an essay: "I was at camp when Uncle Harry died, and finding out about his life from my parents convinced me what a warm and generous man he was." A better version: "The first time I confronted my parents in an adult way was when Uncle Harry died. I was at camp, and they didn't tell me about it for two weeks, thinking I would rather stay at camp than go to his funeral."

In this example, the better version is about the student, not Uncle Harry (who isn't applying for admission), and has a better chance of communicating something about the maturity of the writer.

3. *Don't just "relax and be yourself."* The applications tell students this, but the truth is that applicants will relax when they feel secure. That usually means after they have written several drafts and reviewed them with a teacher or counselor.

An idea that a student thinks of as quirky and relaxed can set an admissions officer's teeth on edge. And who is "yourself"? We all have several selves—one for family, one for friends, one for formal occasions, one for when we are alone. The snapshot taken while fooling around in the basement is you, and so is the picture of you as Best Man in your brother's wedding. Which picture does the admissions committee want to see?

It depends. I tell my students to be a well-rehearsed and optimal version of one of their better selves—the self that is unique and passionate about something important.

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Sanford Kreisberg (e-mail: edit@world.std.com), a lawyer and writing coach, has taught expository writing at Harvard University.

Textbooks: The Real Problem Is Teacher Preparation . . .

TO THE EDITOR:

Nancy Webb's article "The Textbook Business: Education's Big Dirty Secret" (*HEL*, July/August 1995) seems to promote William Bennetta's idiosyncratic *Textbook Letter* rather than address some real issues.

While I agree with much of the criticism of textbooks, the fault lies less with textbook publishers than with schools and teachers. Why are they depending on textbooks? Why aren't teachers trained in their disciplines so that they use textbooks sparingly at best?

Elite schools of education and textbook critics smugly comment on how terrible textbooks are. Yet they ignore why many teachers rely on texts: they lack in-depth knowledge of their subjects and fear leaving the security of textbooks. Why do schools of education emphasize "methods" and other education courses and ignore subject background?

Does a social studies teacher with a few courses in U.S. history have the background to teach African, Middle Eastern, or East Asian studies, or world geography, economics, or medieval European history? Of course not. When assigned to teach such a course, what support do most teachers get? They are not sent to take courses on the subject at the local university or given a library of recent literature on the subject. They are expected to become instant experts. The only support most are offered are a textbook and teacher guide. What is the message? Textbooks are the answer.

If you solve the problem of teacher preparation in content areas, you take a step toward ending the much-deplored overreliance on textbooks.

E. ELLIS
SAUGERTIES, NEW YORK

The writer, a former teacher, now writes social studies textbooks.

. . . Or Maybe It's Brain-Dead Publishers

TO THE EDITOR:

"Purina kid chow" is a wonderfully appropriate label for most school textbooks, and Nancy Webb's article is right on the mark. But it leaves out a major reason why textbooks are dull and unreadable: they don't have authors. Textbooks are assembled by groups of market "experts." All important constituencies must be represented. Nothing that might cause offense may be included. Social studies texts thus become a catalog listing of ethnic heroes and events. There is no story, and certainly no controversy.

Textbooks are often attributed to authors with academic standing who may have reviewed the material but haven't written a word of the contents. Publishers frequently follow state guidelines for content in a slavish manner that delivers everything in theory and almost nothing in practice.

Any reader knows that the most memorable books are those that tell a great story very well. Ask sixth-graders about books they have really enjoyed, and they will repeat the entire plot back to you in excruciating detail. Ask the same children about a paragraph in a standard textbook that they read for homework the previous night; most won't even remember what it was about.

There is hope, however. California recently adopted a series of books for U.S. history in the fifth and eighth grades written by a single author, Joy Hakim. The series, *A History of US*, has been praised by academics (Harvard historian David Herbert Donald called it "the best American history written for young people that I have ever seen"). More important, perhaps, have been the reactions of child reviewers and readers. Hakim asked children to comment on her manuscripts (her basic system: NC for not clear, B for boring, and G for good), and a ten-year-old from Punta Gorda, Florida, wrote to the author, "I'd rather read your books than play Nintendo." California chose *A History of US* specifically because they are books for reading, not for looking up facts in order to answer multiple-choice questions.

Interestingly, the success of Hakim's books has been largely in spite of the efforts of publishers. Before Oxford University Press took it on, the series was turned down by no fewer than 14 houses (including Oxford, first time around). In light of the books' subsequent success, the publishers' reactions are amusing: textbook publishers all felt that they were too "tradelike" (translation: too much fun to read), while trade houses were concerned that they were too comprehensive and educational (translation: not salable to parent consumers).

Many textbook publishers are locked into an archaic approach. Textbooks, or "basals" as they are known in the business, are a dying breed. And the system that produces them is under attack. But a dinosaur sometimes takes a long time to expire, even after its brain has ceased to function.

BYRON HOLLINSHEAD
PRESIDENT, AMERICAN HISTORICAL PUBLICATIONS
NEW YORK CITY

Textbooks Are the Great Equalizer

TO THE EDITOR:

At a time when educational funding has become a battleground and the disparity in per-pupil spending between affluent and economically hard-pressed districts remains significant, good textbooks are the great educational equalizer, an instructional safety net. They give children in poor school districts the same learning tools as their affluent counterparts. In the hands of a dedicated, well-trained teacher, they are formidable instruments in the effort to expand young minds. Articles such as Ms. Webb's do this effort a disservice.

NICHOLAS A. VELIOTES
PRESIDENT, ASSOCIATION OF AMERICAN PUBLISHERS
WASHINGTON, D.C.

Single-Sex Education Offers Crucial Advantages

TO THE EDITOR:

Contrary to the views expressed in "A Narrowly Gender-Based Model of Learning May End Up Cheating All Students" (*HEL*, July/August 1995), single-sex classes in independent girls' schools appear to be empowering young women and have been doing so for many years. Similarly, my experience at Collegiate School (grades 1-12) confirms that an all-boys setting allows

for counter-stereotypical gender development. Classes can proceed on task, students can pursue whatever their interests are, and the pressure to act out in gender-typical ways that exists in so many coeducational schools is eliminated.

Single-sex schools recognize that boys and girls develop in different ways and at different rates and provide school settings where these differences are acknowledged and accepted.

The area requiring the most research in American education is the validity of coeducation. Until the middle of the 20th century, coeducation was almost nonexistent, and it is not the predominate mode of education worldwide. Those in the public sector who are now suggesting that single-sex classes, if not schools, are perhaps the best way to improve education are discovering that there may be cruciai advantages to children in educational settings with only their own gender.

Single-sex schools produce graduates who have great loyalty to their institutions, who value highly the experience of academic rigor and achievement, and who do not evince any significant impediment to "normal" social relations. It would serve the gender researchers well to look further and wider for the sources of strength in American primary and secondary education.

JACOB A. DRESDEN
HEADMASTER, COLLEGIATE SCHOOL
NEW YORK CITY

DEMYSTIFYING DISABILITIES

Awareness Programs Help Change Students' Attitudes Towards Their Disabled Peers

Giving kids a "social script" for their behavior may be a key factor in the success of inclusion efforts

BY ROBERTA TOVEY

"Getting in has gotten easier; fitting in hasn't." So reads a poster from the Easter Seals' *Friends Who Care* curriculum, a program designed to teach elementary school kids about disabilities—what they are, what the range of abilities can be within a particular disability, and what it feels like to live with a disability.

As the poster suggests, although millions of children with disabilities are now being integrated into regular classrooms, boys and girls still avoid schoolmates who seem different. "We're still a long way from fully accepting people with disabilities as people, and seeing them as individuals who have something to offer as students, friends, employees, and volunteers in our communities," says Sandy Gordon, a former special education teacher and designer of *Friends Who Care*.

Researchers agree that attitudes need to be changed. "Many people with disabilities believe that the greatest barriers to full participation in society are not their disabilities or inaccessible buildings, but, rather, biased attitudes of and treatment by nondisabled persons," says Robert Donaldson of Washington State University. Indeed, seeing how rudely her special education students were treated by able-bodied peers and even by teachers is what first inspired Gordon to create a disability awareness curriculum.

Friends Who Care aims to counter misconceptions and prejudices by providing accurate information about the major kinds of disabilities in a direct, sometimes humorous way. Hands-on activities help students get a sense of how it feels to function with a disability. In one activity, for instance, able-bodied students try to get around their school building and grounds as if they were in wheelchairs, keeping a checklist of how accessible their school is. The curriculum also encourages schools to invite disabled guest speakers, so that kids can ask questions and learn first-hand how a person with a given disability does things.

Introduced in 1990 in 20,000 elementary schools around the country, the *Friends Who Care* curriculum includes a 16-page teacher guide, a 45-minute videotape, worksheet activities, guidelines for discussions with guest speakers, posters, and etiquette bookmarks. The kit also includes a pre- and post-program attitude survey.

Learning from Dolls

Brenda Bowen, assistant director of the Chapel Hill Training Outreach Project, helped create *New Friends*, one of the first programs specifically designed to promote awareness and understanding of disabilities. Today, Bowen says, people are more knowledgeable about inclusion than they were in the early 1980s, when *New Friends* was developed. Still used in many schools, the program has parents and kids make dolls out of cloth patterns, giving each doll a disability and a name. Bowen says these dolls "are an especially good way to get young kids to ask questions about disabilities."

The Kids on the Block program takes the use of dolls to another level—lifesize puppets. These engaging, Muppet-like characters, both disabled and able-bodied, come with scripts that introduce kids to disabilities in a playful, light-hearted, and matter-of-fact way. In one skit, Ronaldo, who is blind, runs into Brenda, who is looking frantically for a notice about a parents-day meeting. Ronaldo helps Brenda by finding the notice in his pack—written in Braille. The skit continues as Ronaldo tries to explain Braille to Brenda. She has trouble understanding it, until it occurs to her that Braille is "sort of like a secret code." After each skit, children in the audience are invited to ask the pup-

pets questions about their individual disabilities, how they became disabled, and how they do the things able-bodied kids do.

Kids on the Block skits are normally performed by local volunteers. More than 1,700 community groups around the world have trained themselves to use the puppets, performing for groups of all ages in their areas. Critics caution that if volunteers are not sufficiently well-informed about the disabilities they represent, they may perpetuate misconceptions. The program does provide volunteer groups with information on each disability, as well as a training guide and puppet-training workshops.

While programs for younger children often rely on dolls and puppets, many programs for older kids try to give able-bodied children the experience of a particular disability. Handicapped Awareness Through Simulation (HATS), developed at the Ward-Highlands Elementary School in Ocala, Florida, is one such program. The fifth-graders who participated in HATS were asked to try to maneuver a wheelchair to a counter using only one arm; to listen to a tape of verbal directions muffled by background noise and then try to follow the directions; and to find their way through an obstacle course blindfolded with the help of a cane. Students also watched a *Kids on the Block* video and spent time each week in special education classrooms as peer tutors.

Simulations Can Backfire

Some disability awareness experts are lukewarm about simulation exercises. Emily Bittner, director of the KIDS Project in Berkeley, California, says that such exercises can backfire by "engendering pity for the disabled." Furthermore, says Bittner, "it is impossible to pretend to have a disability. An able-bodied kid sitting in a wheelchair knows he can get up and walk away." Bittner believes that it is essential to bring in people who have disabilities to speak directly to kids, to answer questions and demonstrate assistive devices, and to provide positive role models for disabled students.

Most experts would agree; all of the programs described above either include videos of people with disabilities or provide guidelines for involving a guest speaker who has a disability. As part of its program, the KIDS Project brings speakers with disabilities to schools all over the San Francisco area. One of them is Bittner's daughter Sascha, a student at the University of California who has multiple disabilities, including cerebral palsy, quadriplegia, and visual impairment.

As politically correct terminology and approaches to discussing disabilities change over time, some of the original disability awareness programs require updating. One such curriculum is *Some Ways the Same, Some Ways Different*, available from the Children's Museum in Boston. Directed at elementary school students, *Some Ways the Same* is a substantial revision of the 1978 curriculum *What if you couldn't...?*

The new title reflects the current move away from focusing on the limitations of people with disabilities to seeing them as being just like everybody else, people who can do pretty much what able-bodied persons can do, except that they do some things differently. In the introductory unit, teachers ask students to think about the various groups to which they belong (such as being oldest in the family or having a cat) in order to demonstrate commonalities and differences that are not immediately apparent. People with disabilities, the program teaches, have the same feelings, interests, likes, and dislikes as the able-bodied.

Some Ways the Same, Some Ways Different is more literature-based than its predecessor, reflecting the growing number and greater availability of good books on the subject of disabilities. The Special Needs Project in California specializes in such books. Its forthcoming catalogue will list between 1,500 and 2,000 titles.

Do programs like those described above really work? Yes, say researchers. Robert Donaldson's study of the effectiveness of disability awareness training found that the attitudes of students towards their disabled peers improved significantly and remained more positive over a six-month follow-up period. In speaking to groups about the ramifications of the Americans with Disabilities Act, Hod Gray of the Special Needs Project has observed that both young and old are glad to have disabilities demystified. "People are relieved to know how to behave around those with disabilities, to have a social script," Gray says. How schools and parents teach that script may be a key factor in the success or failure of school-based inclusion efforts.

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Books for Grades K-3

Caroline Arnold. *A Guide Dog Puppy Grows Up*. New York: Harcourt Brace Jovanovich, 1991; 800-543-1918.

Rochelle Bunnett. *Friends in the Park*. Fairless Hills, PA: Checkerboard Press, 1992; 215-949-0970.

Laura Dwight. *We Can Do It*. Fairless Hills, PA: Checkerboard Press, 1993; 215-949-0970.

Joe Lasker. *Nick Joins In*. Morton Grove, IL: Albert Whitman, 1980; 800-255-7675 or 708-581-0033.

Berniece Rabe. *The Balancing Girl*. New York: Dutton, 1981; 800-253-6476.

Books for Older Kids

Joanne Bernstein and Bryna Fireside. *Special Parents, Special Children*. Morton Grove, IL: Albert Whitman, 1991; 800-255-7675 or 708-581-0033.

Westridge Young Writers Workshop. *Kids Explore the Gifts of Children with Special Needs*. Santa Fe: John Muir Publications, 1994; 505-982-4078.

Caroline Janover. *The Worst Speller in Jr. High*. Minneapolis: Free Spirit Publishing, 1994; 800-735-7323.

Videos

VideoPress of the University of Maryland (100 Penn St., Suite 133, Baltimore, MD 21201; 800-328-7450) has an excellent collection of videos available for rent or purchase, including:

Beginning with Bong and *Bong and Donnell*. Learning disabilities and other functional limitations.

Rachel, Being Five and *Rachel in Middle School*. Cerebral palsy.

Shakissba and Friends. Spina bifida.

Curricula and Other Resources

Friends Who Care. National Easter Seal Society, 230 Monroe St., Chicago, IL 60606; 312-726-6200, (TDD) 312-726-4258. Kits, $25.

HATS Program. For information write: Bruce Foster, Principal, Ward-Highlands Elementary School, 537 SE 36th Ave., Ocala, FL 34471.

The Kids on the Block, 9385-C Gerwig Lane, Columbia, MD 21046; 800-368-KIDS or 410-290-9095.

KIDS Project, 75 DeSoto, San Francisco, CA 94127; 415-587-2885. Sets of "problem-solving cards," $15.

Cory Moore. *A Reader's Guide for Parents of Children with Mental, Physical or Emotional Disabilities*, 3rd ed. Available from Special Needs Project (see below).

National Information Center for Children and Youth with Disabilities, P.O. Box 1492, Washington, DC 20013; 800-695-0285.

New Friends. Chapel Hill Training Outreach Project, 800 Eastown Dr., Suite 105, Chapel Hill, NC 27514; 800-473-1727 or 919-490-5577. Teacher's notebook, $15; trainer's manual, $20. Doll patterns are free; ready-made dolls can also be purchased.

Some Ways the Same, Some Ways Different. The Children's Museum Kits Program, 300 Congress St., Boston, MA 02210; 800-370-5487 or 617-426-6500, ext. 231. Two-week rental, $20 for both units (introduction and mental retardation).

Special Needs Project, 3463 State St., #282, Santa Barbara, CA 93105; 800-333-6867 or 805-683-9633.

Understanding Handicaps of Newton, 100 Walnut St., Newtonville, MA 02160; 617-552-7687. Disability-awareness curriculum, revised 1994, $75 plus shipping.

Roberta Tovey is a writer, editor, and teacher in Boston.

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